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JOURNAL OF

THE NEW ENGLAND BOTANICAL CLUB

Vol. 47. June, 1945. No. 558.

JUNCUS MERTENSIANUS AND ITS AUSTROLIMITAL SEGREGATE, J. DURANII

JOSEPH EWAN

(With one map)

FRANZ BUCHENAU wrote in 1906 that "*J*[*uncus*] *Mertensianus*, *nevadensis*, *Suksdorfii* et *columbianus* gregem polymorphum formant. Formae saepe difficillime distinguendae et in locis natalibus melius observandae." (Engler, Pflanzenreich **25:** 202.) Subsequent collections accumulating in our herbaria lend support to Buchenau's statement. But in plant species of wide distribution the geographically terminal populations may, under physiographic isolation, differentiate to a point where they can no longer, with morphologic consistency, be recognized as conspecific with the parent wide-ranging species. The degree of such departure from the characters of the species, along with the nature of the genus, determine whether the biologic unit shall be recognized as a species or subspecies. Juncus is generally admitted to be a natural genus; here the specific lines must be definitively and neatly drawn. Accordingly, I am distinguishing *Juncus Duranii* as the austrolimital Californian facies of the wide-ranging *J. Mertensianus*. The number of collections of *Juncus Duranii* available for study is unfortunately small. Moreover, the habitable areas where such a boreal Juncus might logically be expected in the San Gabriel Mts. are also limited. Dry seasons, particularly when repeated uninterruptedly for a span of years, force boreal plant species into dormancy. Close scrutiny of more cienegas along the highest coast-desert "divide" of the range may reveal additional colonies.

Juncus **Duranii,** n. sp. Slender perennial, rather densely tufted from a short usually matted vertical rootstock, glabrous throughout; stems erect, capillary, 10–20 cm. high, lightly compressed; leaves grass-like, all radical or nearly so, attenuate to a long tip, firm but not stiff, mostly shorter than the flowering stems, 7–15 cm. long, blades subterete, a little conduplicate below, the ligules prominent, rounded or cuspidate, straw-colored; bract of inflorescence subulate, usually 7–10 mm. long, early deciduous; heads solitary, 7–9 mm. across, rarely 2 in a short panicle, flattened-hemispherical; bractlets light-translucent, abruptly mucronate with a distinct awn; perianth-segments linear-lanceolate, 3 mm. long, pale chestnut-brown, the inner whitish on margins, the outer carinate; anthers equaling or a little longer than the filaments; capsule obtuse-obovoid (like *J. Mertensianus*), not stipitate at base; seeds narrowly lanceolate, 0.5 mm. long, honey-brown, obscurely longitudinally lineate.[1]

Type, *J. & N. Ewan 10060,* Lilly Spring, n. slope Mt. Hawkins, San Gabriel Mts., Calif., at COLO. *J. Mertensianus sensu* Parish, Muhlenbergia **6:** 123. 1910, as to so. Calif. colls. and sensu Johnston, Bull. S. Calif. Acad. Sci. **17:** 60. 1918, as to *Johnston 1502,* Kellys Cabin; cf. Johnston, Pl. World **22:** 83. 1919.

Known only from the San Gabriel, San Bernardino, and San Jacinto mountains of southern California where it is apparently localized about shaded mossy seeps in the White Fir-Lodgepole Pine association (*Abies concolor-Pinus contorta Murrayana*), often growing with *Mimulus moschatus* and other Canadian-Zone herbaceous species.

Colls. studied: San Gabriel Mts.: Mt. Islip, n. slope 7500 ft., *Fosberg & Ewan 4978* (LAM); Lilly Spr., Mt. Hawkins, TYPE; Kellys Cabin, 8350 ft., Ontario Peak, *Johnston 1502* (DS). Almost certainly *Johnston 1390,* Coldwater Fork Lytle Creek, in cienegas, 7000 ft., is this species but material not seen. San Bernardino Mts.: cienega in Mill Creek Canyon, ca. 6000 ft., *Parish 2522* (DS). San Jacinto Mts.: stream above Round Valley, *C. M. Wilder 924* (DS).

[1] Juncus **Duranii,** sp. nov. Herba perennis gracilis e rhizomate brevi verticali plerumque implexo subdense caespitosa omnino glabra; caulibus erectis capillaribus 10–20 cm. altis leviter compressis; foliis graminoideis omnibus basi vel basem versus gestis, in apicem longum angustatis, firmis plerumque quam caulibus floriferis brevioribus, 7–15 cm. longis, laminis subteretibus inferne leviter conduplicatis, ligulis prominentibus stramineis apice rotundatis vel cuspidatis; inflorescentiae bractea subulata plerumque 7–10 mm. longa mox decidua; capitulis solitariis 7–9 mm. diametro rarius 2 paniculam brevem formantibus depresso-hemisphaericis; bracteolis translucentibus abrupte mucronatis manifeste aristatis; tepalis lineari-lanceolatis 3 mm. longis pallide castaneis, interioribus margine albescentibus, exterioribus carinatis; antheris filamenta vel aequantibus vel paullum superantibus; capsulis obtuso-obovoideis basi estipitatis; seminibus anguste lanceolatis 0.5 mm. longis melleo-brunneis obscure longitudinaliter lineatis.

The *Juncus* here designated as *J. Duranii* was referred to *J. Mertensianus* by California authors, beginning with Samuel Bonsall Parish. However, it is almost as closely related to *J. nevadensis*. Table 1 brings out the morphological likenesses of

TABLE 1. COMPARISON OF THREE SPECIES OF JUNCUS

Juncus	*Mertensianus*	*Duranii*	*nevadensis*
Flowering stems	rather tufted from an almost single compact root-crown, not spreading-rhizomatous	tufted, from a single congested rootcrown, not spreading-rhizomatous	not tufted, several, from a spreading rhizome
Leaves	somewhat gladiate, distinctly compressed laterally, not at all capillary	not at all gladiate, narrowly lengthwise compressed, capillary	scarcely gladiate but variable, from capillary to linear.
Ligule	prominent, broadly rounded or barely acute at tip, opaque	prominent, rounded or cuspidate, translucent	prominent, long-acuminate to an acute tip, translucent
Bract of head	spathe-like or flaring, clasping at base, tapering to a long-filiform erect or ascending tip	only a little broader at base, almost uniformly subulate, erect or apparently early withering and deciduous beyond head	inconspicuous, short-subulate, equaling or a little exceeding lowest head
Heads	solitary or as if so by crowding of 2 or 3 short-stalked clusters (rarely 2 or more in interrupted succession), rounded-hemispherical or as broad as high	solitary or rarely 2 in interrupted succession, flattened-hemispherical in outline	often 3 or 4 (or to 10) in an interrupted narrow panicle, flattened-hemispherical to turbinate or campanulate
Bractlets subtending each flower	tapering to a short awn-tip, dark brown, opaque	abruptly mucronate with a distinct awn ⅓ as long as bractlet, flesh-colored, translucent	ovate, acuminate to an awn-tip, flesh-colored, translucent
Perianth segments	long-subulate, wholly rich shining chestnut brown	linear-lanceolate, pale or dilute brown, whitish-hyaline-margined	lanceolate, wholly light brown
Stigmas	included or scarcely exserted	long-exserted	long-exserted

Juncus Duranii with both cognate species. The seed characters are not definitive; both *J. Duranii* and *J. nevadensis* have minute seeds. The capsules of the three species are very similar and cannot be distinguished. In habit, leaf, bracts, heads, bractlets, and perianth *Juncus Duranii* combines the characters of *J. Mertensianus* and *J. nevadensis.*

Juncus Duranii bears the name of VICTOR DURAN, painstaking student of the flora of the White Mts. of the California-Nevada border (cf. Madrono **2**: 119), whose well prepared exsiccatae of the San Gabriel Mts., distributed by the University of California, have enriched our herbaria.

JUNCUS MERTENSIANUS

Juncus Mertensianus Bong., Mem. St. Petersb. Acad. Sci. ser. 6. **2**: 167. 1832, based on a Mertens collection from "l'Ile de Sitcha", Alaska. Type presumably at Leningrad. In Prager Herb. (CAS) there is a sheet (no. 106338) bearing the label "Sitcha, ex Museo Petropolitani 160"; this may be an authentic specimen. The many Alaskan collections examined are in agreement with this Sitka plant. Carl Heinrich Mertens accompanied Lütke on the corvette *Senjavin,* visiting Sitka from June 24th to July 31st, 1827, *fide* Hultén.

Since the publication containing the original description of *Juncus Mertensianus* is rare in libraries, the description is reproduced here:

> "162. *Juncus Mertensianus n. sp.* Culmo erecto basi vaginato, folio uno alterove plano lineari basi vaginante; floribus capitatis, triandris, perigonii exterioris partibus carinatis subulatis interioribus paulo longioribus; capsula........
>
> Planta caepitosa [sic], spithamaea. *Culmi* basi vaginati, applanati, striati, glabri. Vaginae membranaceae basi laxae, aphyllae. *Folia* caulina 1–2, plana, linearia, acuta, glabra, striata, 1–2-pollicaria, basi vaginata; vaginis laxis, margine membranaceis, striatis. *Involucrum* foliis simile. *Flores* capitati, atro-purpurei. Capitula saepissime duo."

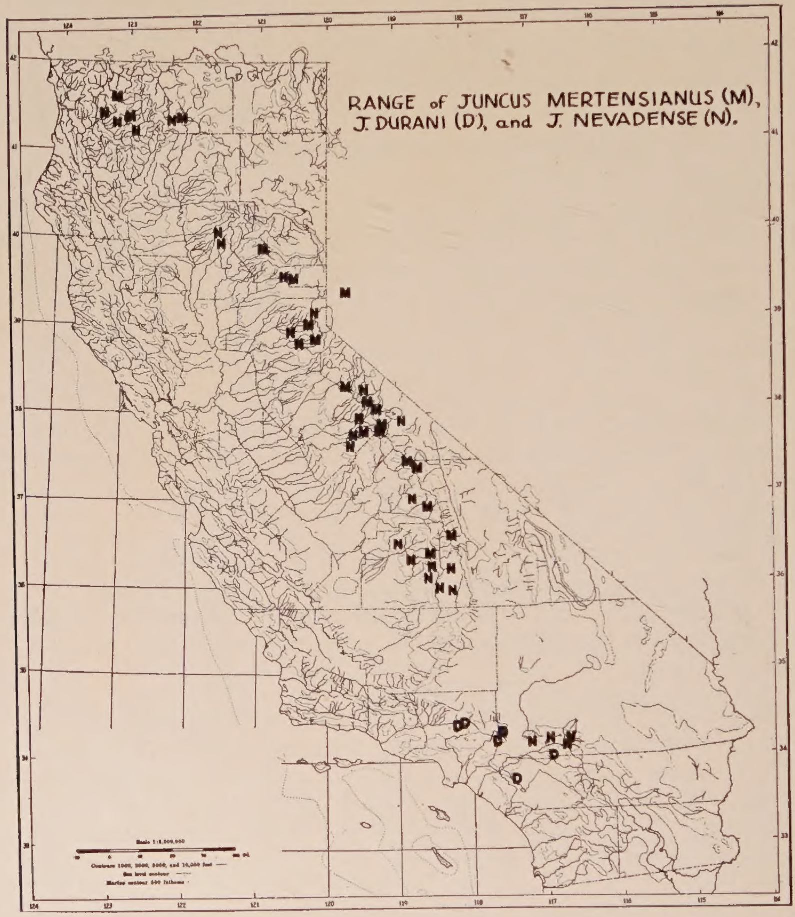
In the introduction to the florula of Sitka the statement is made that the enumeration is based on the collections of Mertens made on "l'Ile de Sitcha".

The published illustrations of *Juncus Mertensianus* are of varying usefulness and not all faithful to the habit of the plant. Both Buchenau (*op. cit.* fig. 96. 1906) and Jepson (Fl. Calif. fig. 42f and 42g. 1921) exaggerate the creeping rootstocks, as if the material from which the figure was drawn had been abnormally flattened out in the press. However, Jepson does not describe the plant as strongly rhizomatous (*op. cit.* **1:** 254. 1921), as it is illustrated. The illustration offered by Abrams (Ill. Fl. Pac. States 363. fig. 888. 1923) better indicates the short *vertical* rootstock of *Juncus Mertensianus.*

Representative colls.: ALASKA: Old Harbour, Kodiak Isl., *Eyerdam 712* (DS); Yes Bay, 20 VIII 1895, *T. Howell* (DS); Unimak Isl., *Eyerdam 2021;* Atka, *Eyerdam 1174.* BRITISH COLUMBIA: Big Bend district, Selkirks, 6000 ft., *Shaw 1093* (COLO), *982* (COLO); Glacier VII 1896, *Dudley.* WASHINGTON: Olympic Mts., *Elmer 2735.* Whatcom Co.: Welcome Pass, 5000 ft., *Thompson 8068.* Pierce Co.: Paradise glacier, Mt. Rainier, 6000 ft., *Vincent Nelson 2912* (COLO). CALIFORNIA: Siskiyou Co.: Mt. Shasta summit trail, 8250 ft., *Cooke 16300* (COLO); Wagon Camp, Mt. Shasta, 5700 ft., *Cooke 13733* (DS); Rattlesnake Mdw., Preston Peak, 5500 ft., *Kildale 9035;* Medicine Lake, 7000 ft., *Heller 13715;* foot Mt. Eddy, 3700 ft., *Heller 12251.* Shasta Co.: Bumpas Hell trail, Mt. Lassen, 7000 ft., 7 IX 1931, *M. S. Jussel* (CAS). Butte Co.: Butte Creek House, *E. B. Copeland 348;* Butte Meadows, *Heller 14680.* Plumas Co.: Mud Lake, Mt. Elwell, 6800 ft., *Ewan 8274.* Sierra Co.: Lake of the Woods, vic. Webber Lake, 1 IX 1894, *Dudley.* Amador Co.: Emigrant trail summit, 8000 ft., Silver Lake, 24 VIII 1929, *Gwendolen Newell* (CAS). Eldorado Co.: Grass Lake, Lake Tahoe region, *Abrams 6793;* Glen Alpine, 1 VIII 1906, *Geo. B. Grant;* Desolation Valley, 8500 ft., *Abrams 12735.* Tuolumne Co.: summit Sonora Pass, 9000 ft., *Hutchinson 3777* (COLO). Mono Co.: Mill Creek, Lundy Canyon, 8200 ft., *Pierson 12200* (COLO); Mono Lake, *Abrams 13613;* Slate Creek Basin, *J. Clausen 967* (DS). Mariposa Co.: above Nevada Falls, Clouds Rest trail, 13 VI 1894, *Dudley;* Peregoy Mdws., 7200 ft., *Abrams 5457, 5462;* Yosemite Valley, *Abrams 4630.* Fresno Co.: upper Kings River, 23 VIII 1904, *Dudley.* Tulare Co.: Kaweah Peaks, 6000–8000 ft., *Dudley 2332;* above Bullion Flat, Mineral Gap, *Dudley 2582;* Hocket trail, *Dudley 1065;* upper Kern River, in 1875, *Rothrock 382* (DS). Inyo Co.: Rock Creek Lake Basin, 11,400 ft., *Peirson 9119* (COLO). UTAH: Iron Co.: betw. Navajo Lake and Cedar Breaks, *Eastwood & Howell 7250* (more rhizomatous than Pac. coast colls.!). COLORADO: Clear Creek Co.: meadow at upper Clear Cr. above Ski House, *Ewan 14646.*

EXCLUDED SPECIES

Juncus aseptus Engelm. ex Buch. = *J. nevadensis* Wats., Proc. Am. Acad. Arts and Sci. **14:** 303. 1879. *Juncus aseptus* Engelm.


RANGE of JUNCUS MERTENSIANUS (M),
J. DURANI (D), and J. NEVADENSE (N).

ex Buch. in Engler, Pflzr. **25:** 202. 1906, *nomen subnudum*, based on *Parish 3788*, from Bear Valley, San Bernardino Mts., Calif. Isotype (UC) studied.

"Juncus aseptus", an herbarium name bestowed by Engelmann, was first published by Buchenau and must rest nomenclaturally on *Parish 3788*. Parish was correct in pointing out (Muhlenbergia **6:** 123. 1910) that the name was first given to an earlier collection, also from Bear Valley, his *1439*, nevertheless his *3788* must be considered the type collection, contrary to Parish's holographic note accompanying *1439* in the Parish

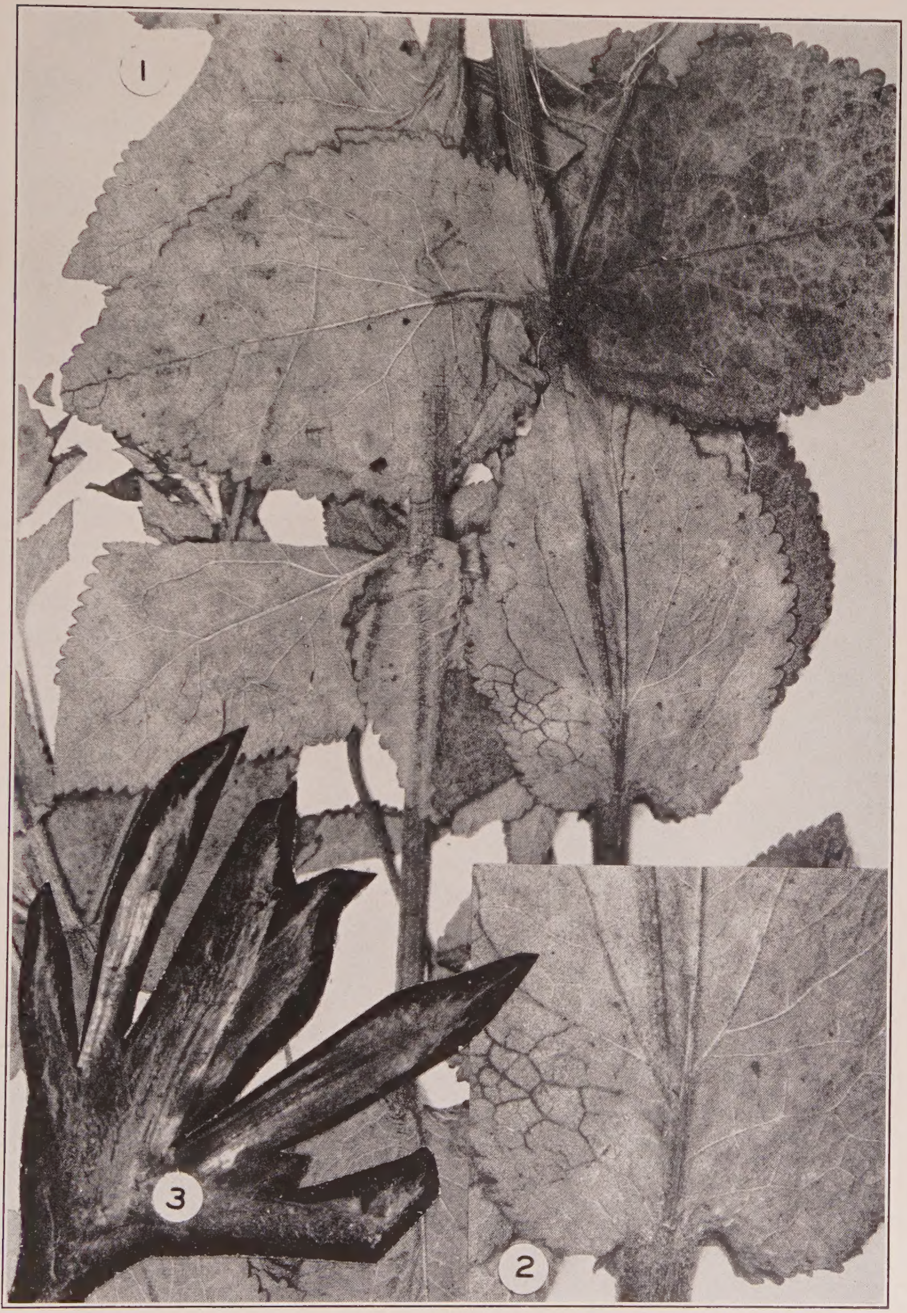


Photo. B. G. Schubert.

Eupatorium cordigerum: fig. 1, portion of type, × 1; fig. 2, venation of lower leaf-surface, 1½; fig. 3, old involucre, × 10

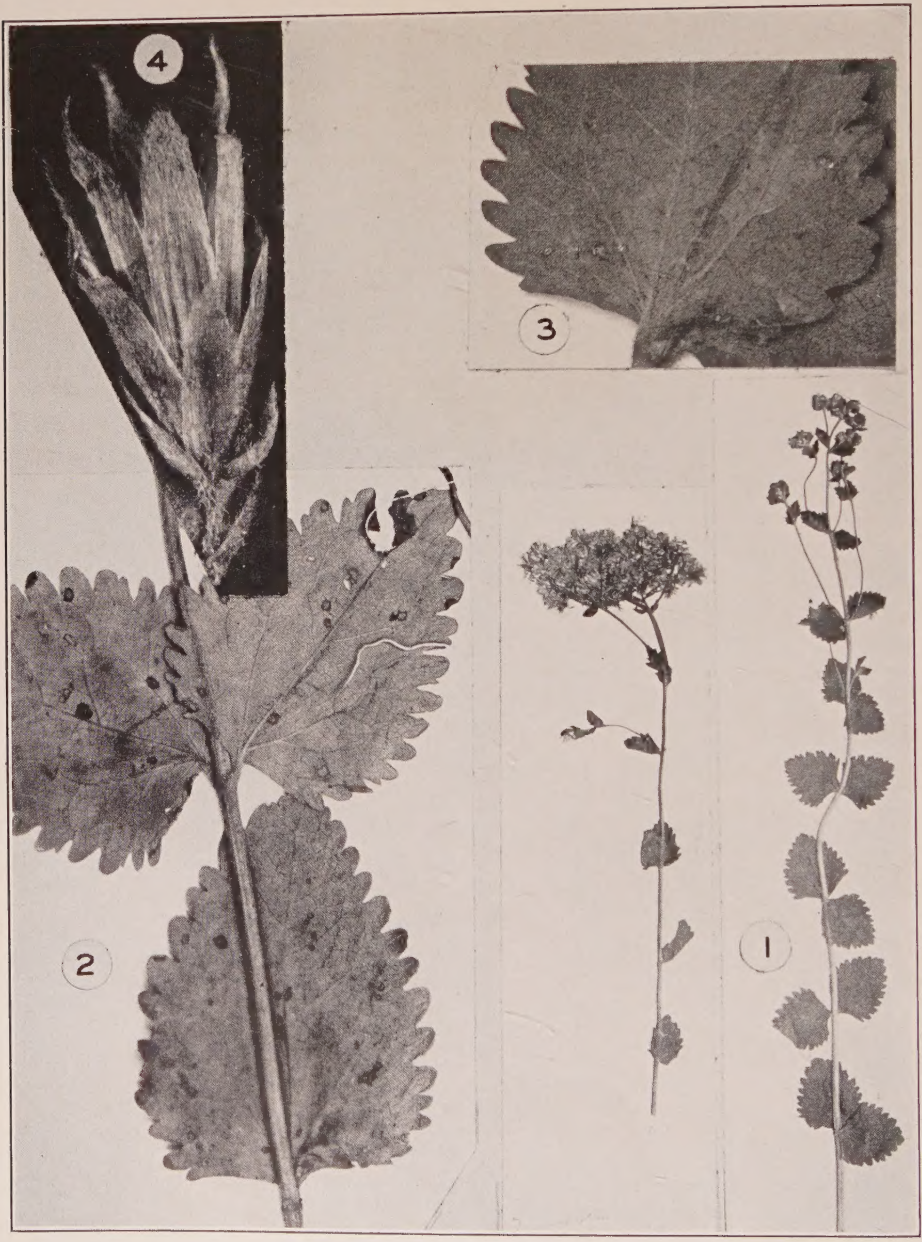


Photo. B. G. Schubert.

Eupatorium rotundifolium: fig. 1, type, × ⅕, after *B. L. Robinson;* fig. 2, median leaves, × 1; fig. 3, venation of lower leaf-surface, × 2; fig. 4, involucre, × 10

Herbarium (DS). The plants which Engelmann named *Juncus aseptus* are incompletely septate, but this condition is frequent over the entire range of *J. nevadensis.* Jepson's *diagnosticum:* "marked by its very narrow and erect strongly septate leaves with prominent ligules" for *Juncus nevadensis* is only partly true. The leaves are seldom "strongly septate" and not always "very narrow", though in general they are much more grass-like than those of *J. Mertensianus.* Both species have "prominent ligules". From the fact that Engelmann did not publish *J. aseptus* we may infer he concluded that the plant was indistinguishable from *J. nevadensis.* as Parish and Jepson subsequently decided.

Collections from the herbaria of Stanford University (DS), University of California, Berkeley (UC), California Academy of Sciences (CAS), Los Angeles Museum (LAM) and the University of Colorado (COLO) have been studied and selected collections are cited herein. Where the location of the collection may not be deduced from the collector's name, the herbarium of deposit is noted. To the personnel of these institutions who have made available this material I am indeed grateful.

Botanist with the Foreign Economic Administration

BOTANICAL SPECIALTIES OF THE SEWARD FOREST AND ADJACENT AREAS OF SOUTHEASTERN VIRGINIA

M. L. Fernald

(Continued from page 182)

Cephalanthus occidentalis L., var. pubescens Raf. To the previously cited stations, on the Coastal Plain, add an extensive one in the outer Piedmont. Greensville Co.: border of Mitchell's Millpond, west of Brink, no. 14,665; the dull or lustreless foliage, downy beneath, strongly contrasting with the bright green foliage of typical glabrous *C. occidentalis.*

Elephantopus carolinianus Willd., forma vestitus Fernald in Rhodora, xliv. 458 (1942). To the single known station (in Nansemond Co.) add one in Brunswick Co.: woods along Meherrin River at Westward Bridge (or Mill), no. 14,742. See p. 100.

Eupatorium hyssopifolium L. (typical). See Rhodora, xliv. 459, pl. 737, fig. 1 (1942). Local range extended inland from the

Coastal Plain to Brunswick Co.: springy sphagnous and argillaceous bog, Ram-hole Swamp, Seward Forest, near Triplett, no. 14,744. See p. 103.

E. **cordigerum** (Fernald), stat. nov. (plate 908). *E. rotundifolium* L. var. *cordigerum* Fernald in Rhodora, xlv. 477 (1943).

At the time I published *E. rotundifolium*, var. *cordigerum* I was following the interpretation of Fernald & Griscom in Rhodora, xxxvii. 180 and 181 (1935), in which all members of the *rotundifolium* series were merged as one variable species. In that paper, however, certain seemingly constant and morphologically significant characters were overlooked and too much weight was placed on the variable ones, like the occurrence of occasional alternate branching as opposed to predominantly opposite branching. No note was made of the very striking fact that in *E. rotundifolium* the principal cauline leaves (plate 909, figs. 1–3) have their bases straight, entire and subtruncate to broadly cuneate, with the toothing starting above this entire base; furthermore, it was not noted that in *E. rotundifolium* (plate 909, figs. 2 and 3) the ascending and prolonged prominent lateral veins arise from the base of the midrib. In the other three species, *E. verbenaefolium* Michx. (1803) = *E. lanceolatum* Muhl. ex Willd. (1804), our plate 910, *E. pubescens* Muhl. ex Willd. (1804), our plate 911, and *E. cordigerum*, plate 908, the principal leaves are toothed to the base and the elongating lateral veins tend to be united at base to the midrib, coming off from it well above its base. The uppermost leaves of *E. verbenaefolium* are greatly reduced, becoming narrowly lanceolate to linear and entire, while in the other three species they are more ovate and toothed. The involucre of *E. verbenaefolium* (plate 910, fig. 4) is about 1 mm. shorter than in the others, the inner phyllaries rather abruptly tipped. Northeast of the upland region of Virginia and Kentucky *E. verbenaefolium* is primarily a coastwise plant, of acid peats and sands northeastward to southern New England. Reexamination of a photograph of Michaux's type (our plate 910, fig. 1) indicates that an error was made when, in 1935, it was stated as identifiable with *E. pubescens* (plate 911). In regard to earlier names of Walter which, perhaps, might be applicable to *E. verbenaefolium*, it is unsafe to take them up until his plants can be actually studied. Walter's diagnoses were very brief, he did not realize the complexity of the genus in the Southeast, and his names could well belong to plants quite different from *E. verbenaefolium.*

E. pubescens, E. cordigerum and *E. rotundifolium* have the inner phyllaries attenuate to acute or slender tips. In *E. pubescens* the leaves are oblong to ovate, gradually rounded to base, the plant more general in the Piedmont area than *E. verbenaefolium*, occurring in moist or dry woods, thickets, etc., from Florida to Louisiana, northward to southern Maine, Massachusetts, southeastern New York, New Jersey, Pennsylvania, western Virginia and West Virginia.

E. rotundifolium, with characteristic straight and untoothed leaf-base, broadly deltoid-ovate to suborbicular rugose-veiny blades, with the prolonged ascending lower veins springing from the base of the midrib, characterizes siliceous, argillaceous or peaty soils from Florida to Texas, north only to Long Island, New Jersey, Maryland, Tennessee and Arkansas; while *E. cordigerum* is characteristic of river-marshes, swales and bogs of the Coastal Plain of southeastern Virginia and eastern North Carolina. Its strongly cordate-clasping leaves are unique in the group and their prolonged lateral veins are united to the midrib much higher than in the others, the type showing compound bases of the midrib up to 1.5 cm. long. In *E. rotundifolium* the inner phyllaries taper to slender pointed tips, in *E. pubescens* they are merely acuminate, but in *E. cordigerum* they are prolonged into long arching, linear, scarious appendages.

After several days of checking and rechecking the characters I feel that *E. verbenaefolium, pubescens, cordigerum* and *rotundifolium*, although some of them may hybridize, are quite as clear species as *E. rugosum* (*E. urticaefolium*) and *E. aromaticum*, or as *E. dubium* (*verticillatum*), *E. maculatum* and *E. fistulosum* of the *purpureum* series.

Plate 908, Eupatorium cordigerum Fernald: fig. 1, portion of type, ×1; fig. 2, base of leaf, to show fusing of lateral nerves and midrib, × 1½, from type; fig. 3, involucre, × 10, from *Fernald*, no. 14,502.

Plate 909, E. rotundifolium L.: fig. 1, type (two stems), × ⅕, photo. by *B. L. Robinson;* fig. 2, characteristic leaves, to show subtruncate and entire base and basal lower lateral veins, × 1, from south of Grassfield, Norfolk Co., Virginia, *Fernald & Long*, no. 4219; fig. 3, base of leaf, to show venation, × 2, from no. 4219; fig. 4, involucre, × 10, from no. 4219.

Plate 910, E. verbenaefolium Michx.: fig. 1, type, × ¼, photo. by *B. L. Robinson;* fig. 2, characteristic foliage, × 1, from Winterham, Amelia Co., Virginia, *Fernald & Long*, no. 9168; fig. 3, base of leaf, to show venation, × 2, from no. 9168; fig. 4, involucre, × 10, from no. 9168.

Plate 911, E. pubescens Muhl.: fig. 1, type, × ¼, photo. by *B. L. Robinson;* fig. 2, median leaves, × 1, from Auburn, New Jersey, *Long,* no. 18,060; fig. 3, base of leaf, to show fusion of lower lateral veins and midrib, × 2, from no. 18,060; fig. 4, involucre, × 10, from no. 18,060.

*E. aromaticum L., var. lacerum Gray.—Princess Anne County: rich woods, Virginia Beach, no. 5075 (distrib. as a hybrid). Sussex County: rich woods and bushy clearing north of Double Bridge, about 6 miles northwest of Jarratt, no. 11,452.

Typical thick-leaved *Eupatorium aromaticum* has the dark green leaves ovate, rounded to subtruncate at base, blunt and with blunt teeth. Var. *lacerum,* described from Florida, has the thinner, pale green, rhombic- or triangular-ovate, acuminate blades cuneate at base and sharply, sometimes lacerately, toothed, and on slender petioles. Transitions occur but the variety seems to be southern.

*E. sessilifolium L., var. Brittonianum Porter. Giles County: woods on dry shaly hillslope along New River, 1.5 miles south-southwest of Goodwin's Ferry, *Fogg,* no. 14,991.

Typical *Eupatorium sessilifolium* has relatively thin, lanceolate leaves, usually with rather prominent toothing. It is apparently frequent in calcareous areas in Virginia, where both vars. *Brittonianum* and *Vaseyi* (Porter) Fernald & Griscom are found. The species consists of three somewhat pronounced varieties, though, like all true varieties, their characters merge. As stated, the leaves of true *E. sessilifolium* are relatively thin, lanceolate and commonly with prominent teeth. It is rare and mostly uncharacteristic in New England and most of New York, where var. *Brittonianum* is the usual variety, this plant having firmer to subcoriaceous ovate-lanceolate to ovate leaves, with the teeth relatively fine. Like typical *E. sessilifolium* its leaves are slenderly acuminate and the larger ones range from 0.8–1.8 dm. long. Measurements of the thin- and lanceolate-leaved series (25 nos.) gives a range in size of the largest leaves of 0.9–1.8 dm. long by 2–4 cm. wide, with an average of 14 cm. long and 2.5 cm. wide, five to six times as long as broad. Var. *Brittonianum* (45 sheets), an isotype of which is before me, gives a range of 0.8–1.8 cm. long by 3–6 cm. wide, with an average of 12.9 cm. long by 4.4 cm. wide, about three times as long as wide. That these proportions are significant is apparent from the rarity of typical *E. sessilifolium* or its absence in New England, interior New York, Wisconsin, Illinois and Missouri, and the tendency of

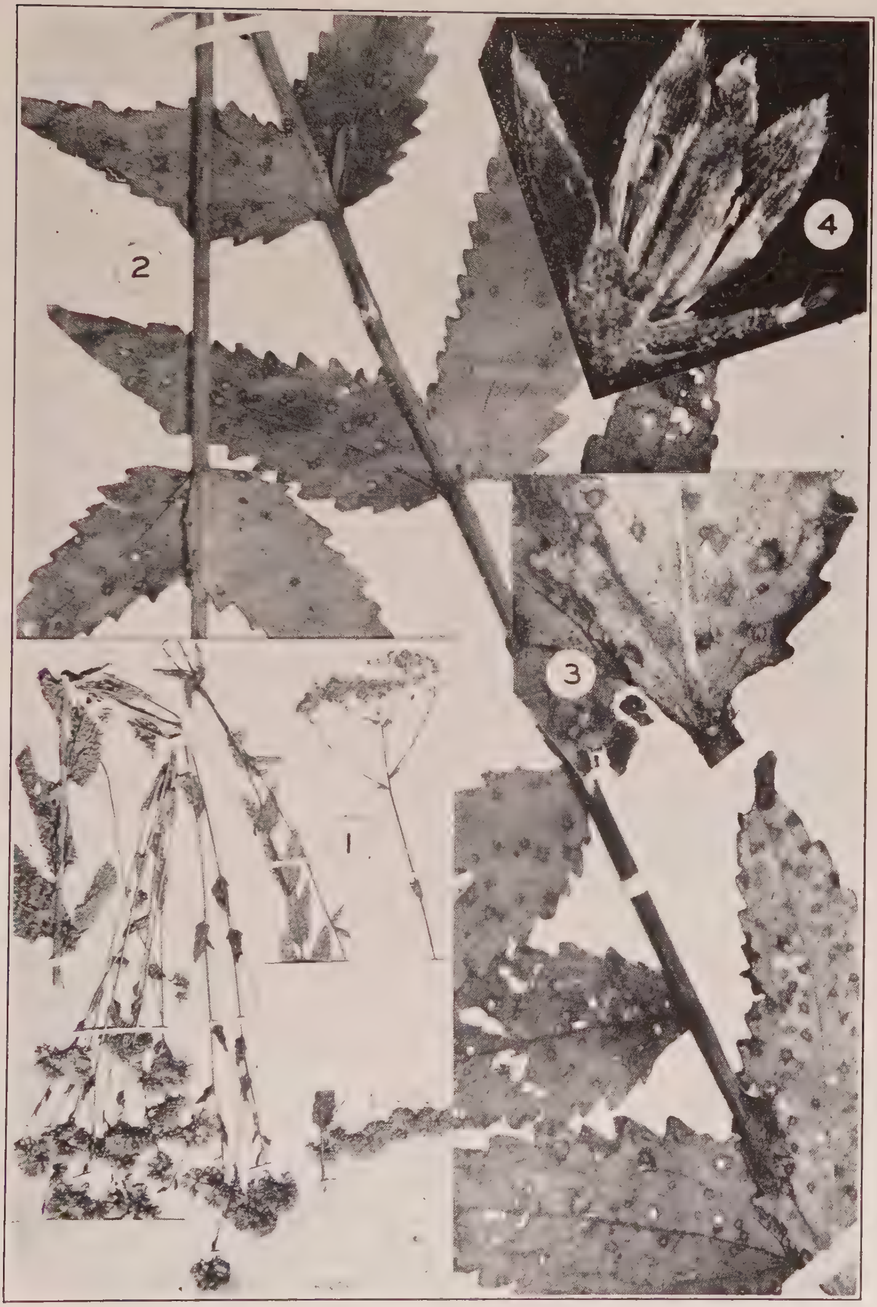


Photo. B. G. Schubert.

Eupatorium verbenaefolium: fig. 1, type, × ¼, after *B. L. Robinson;* fig. 2, foliage, × 1; fig. 3, lower veins of lower leaf-surface, × 2; fig. 4, involucre, × 10

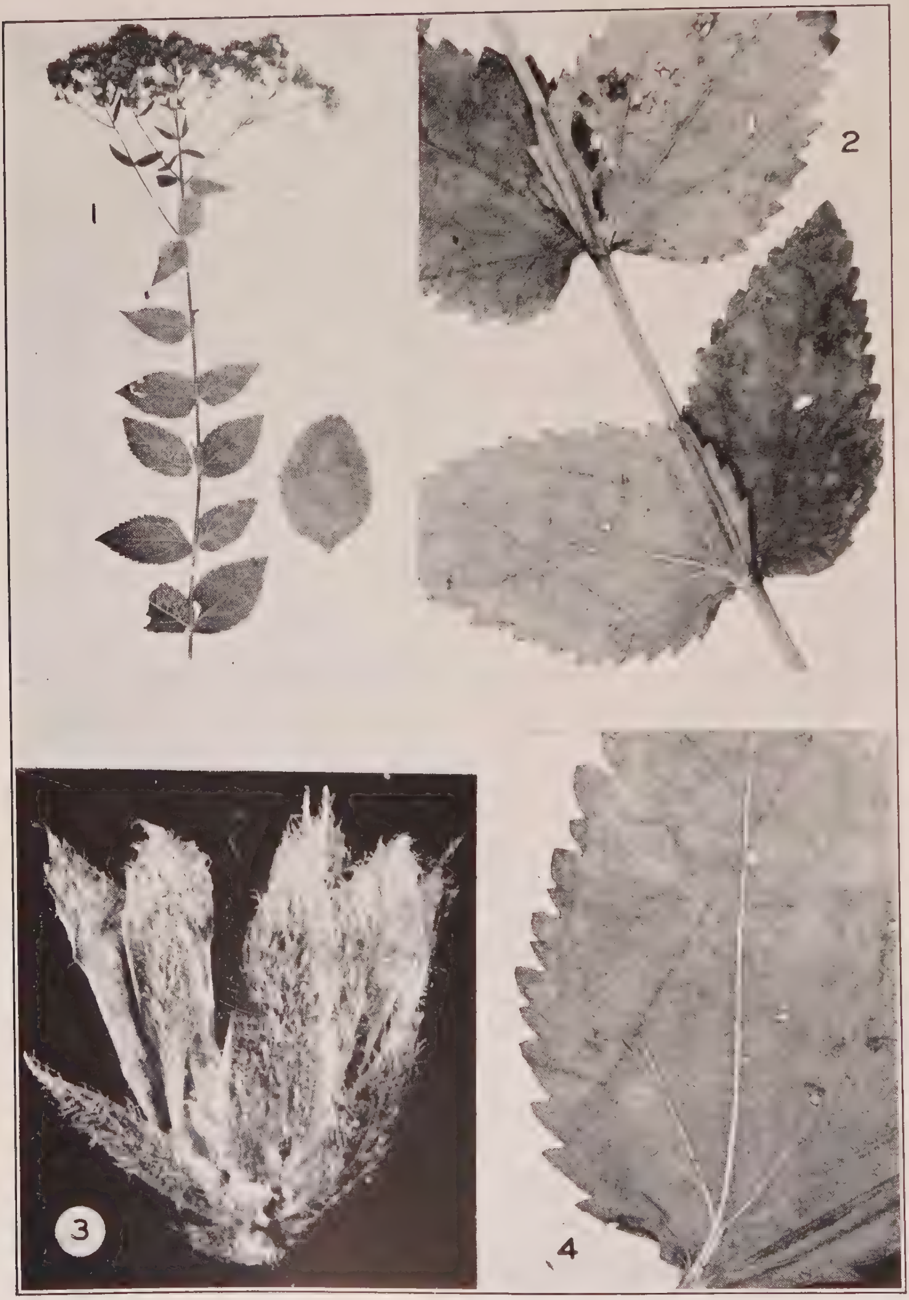


Photo. B. G. Schubert

EUPATORIUM PUBESCENS: FIG. 1, TYPE, × ¼, after *B. L. Robinson;* FIG. 2, median leaves, × 1; FIG. 3, involucre, × 10; FIG. 4, venation of lower leaf-surface, × 2 var. *Brittonianum* to follow the higher mountains to western North Carolina and eastern Kentucky.

Var. *Vaseyi* has the upper half of the stem puberulent or minutely pilose, sometimes glutinous, the duller green leaves oblong-ovate, merely acute or short-acuminate, the larger ones 4–12 cm. long by 2.3–6 cm. broad (about twice as long as broad) and scabrous beneath with minute puberulence. The type (U. S. Nat. Herb.) is quite characteristic of the narrower-leaved plants of this variety. It occurs in less calcareous habitats than the others, from southeastern Pennsylvania and eastern Maryland to West Virginia, south to eastern Virginia, North Carolina and eastern Tennessee.[1]

SOLIDAGO RUGOSA (Ait.), var. CELTIDIFOLIA (Small) Fernald. Local range extended inland from Coastal Plain to BRUNSWICK CO.: springy sphagnous and argillaceous bog, Ram-hole Swamp, Seward Forest, near Triplett, no. 14,751. See p. 103.

*HAPLOPAPPUS DIVARICATUS (Nutt.) Gray. (*Isopappus divaricatus* (Nutt.) T. & G.). Range extended northward into BRUNSWICK CO.: fallow field, south of Seward Forest Headquarters, Triplett, Nov., 1944, *Lewis*.

A characteristic erect and late-flowering southern annual of dry open woods, clearings and fields, often weedy. In his Genus Haplopappus, 212, 213 (1928), Hall gave its range, from Florida to Texas, northward to South Carolina and Arkansas, and its height as "2 to 7 dm." It has been found, however, in North Carolina: old field, McCuller's, Wake Co., Oct. 12, 1937, *Godfrey;*

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[1] The following *Eupatoria*, although not from Virginia, may be noted here.

E. RESINOSUM Torr., var. **kentuckiense,** var. nov., *E. resinoso* habitu simillima; caulis internodiis supernis corymbi ramibusque pilosis, pilis elongatis curvatis.—Nelson County, KENTUCKY: marshy area, Bean's Lake, September 8, 1932, *Sister Rose Agnes* (TYPE in Herb. Gray).

Closely matching the endemic *Eupatorium resinosum* of pine-barren bogs of New Jersey and Delaware in habit, foliage, involucres, etc., but differing in the longer pubescence, typical *E. resinosum* being minutely puberulent. Sister Rose Agnes correctly identified the plant as *E. resinosum* but the late Dr. Robinson, evidently without a close study of the plant, relabeled it *E. perfoliatum*, var. *cuneatum* Engelm. The involucre and the narrow leaves without the broadly cuneate, entire base of *E. perfoliatum*, var. *cuneatum* are identical with those of the New Jersey plant.

E. DUBIUM Willd., forma **elutum,** f. nov., foliis ovatis triplinerviis subtus viscido-granulatis scabris; involucris floribusque albidis.—TYPE: low ground near Long Island Sound, Saybrook Junction, Connecticut, September 14, 1914 (colony of about 100 plants), *R. W. Woodward* in Herb. Gray.

E. MACULATUM L., forma **Faxoni,** f. nov., foliis anguste ovatis utrinque attenuatis irregulariter grosse serratis subtus scabris; corymbo supra complanato; phyllariis floribusque albidis.—TYPE: Gate of Crawford Notch, New Hampshire, September 2, 1884, *Charles E. Faxon* in Herb. Gray.

disturbed soil on sandhill, south of Aberdeen, Scotland Co., *Godfrey*, no. 6938; one of the Godfrey specimens 1 m., the other 1.4 m. high. Mr. Lewis states that his plant was 6 ft. (1.8 m.) high. Small individuals from Georgia are only 1.5 dm. high. The species, like most annuals of disturbed soils, will evidently respond to the amount of nutrition.

Boltonia caroliniana (Walt.) Fernald in Rhodora, xlii. 487, pl. 642 (1940). Range extended inland to western Brunswick Co.: bottomland woods along Poplar Creek, southwest of Ebony, no. 14,668. See p. 97.

Boltonia caroliniana, known only from eastern South Carolina and southeastern Virginia, is here found along Roanoke drainage. It is presumably along the lower Roanoke River and its tributaries in North Carolina.

15/ *Polymnia Uvedalia L., var. densipila Blake in Rhodora, xix. 48 (1917). Brunswick Co.: rich low woods (bordering swamp of Quarrel's Creek), "Chamblis bigwoods", Seward Forest, near Triplett, no. 14,754. See p. 101.

Differing from typical *Polymnia Uvedalia*[1] and its var. *floridana* Blake in the very dense and essentially glandless pilosity of the branches of the inflorescence. Originally described from Louisiana, Oklahoma and Texas; also from Bermuda. More recently extended northward in the Mississippi Basin to Missouri. Its seeming isolation in southeastern Virginia reminiscent of several other plants.

Helianthus angustifolius L. Noted (but not collected) at several places in Brunswick Co. See p. 103.

Eclipta prostrata (L.) L. *E. alba* (L.) Hassk.—Common in the southeastern counties.

Here entered in order to call attention to the correct name, as taken up by Exell in his Cat. Vasc. Pl. S. Tomé, 225 (1944). The earliest names (omitting later ones for this cosmopolitan species) as enumerated by Exell are

> *Verbesina alba* L. Sp. Pl. ii. 902 (1753); *V. prostrata* L., l. c. (1753). *Eclipta prostrata* (L.) L. Mant. Pl. Alt. 286 (1771). *E. erecta* L. l. c. (1771), *nomen illegitimum*. *E. alba* (L.) Hassk. Pl. Jav. Rarior. 528 (1848).

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[1] I am often asked about the specific name *Uvedalia.* The species was named for the Rev. Dr. Robert Uvedale (1642–1722), an English botanist, mentioned by Plukenet and a correspondent of Magnol, Sloane, Sherard and other leading botanists of his time. The genus *Uvedalia* was dedicated to him by Robert Brown.

Since *Verbesina alba* L. and *V. prostrata* L. are considered conspecific and are of even date, the first of them taken up must stand. This is *E. prostrata* (L.) L. (1771).

CIRSIUM VIRGINIANUM (L.) Michx. Range extended inland to BRUNSWICK CO.: springy sphagnous and argillaceous bog, Ramhole Swamp, Seward Forest, near Triplett, no. 14,757. Also noted in dry pine woods near by. See p. 103.

C. VIRGINIANUM, forma REVOLUTUM (Small) Fernald in RHODORA, xlv. 509 (1943). BRUNSWICK CO.: with the last, no. 14,758. See p. 103.

SOME INCONVENIENT UPHEAVALS OF FAMILIAR NAMES AND AUTHOR-CITATIONS.—Tiring of trying to find even recognizable formal, not to say varietal, differences in some recently proposed "subspecies", I turned, for a let-up in the tension, to the problem of exact dates of issue of certain publications which I had found cited. These involved three works of nearly competing dates: Sprengel, Florae Halensis Tentamen Novum, with the date on the title-page 1806; Sprengel, Mantissa Prima Florae Halensis, with the title-page dated 1807; and Persoon, Synopsis, pars ii. dated 1807. Fortunately the date of publication of pp. 1–272 of vol. ii. of Persoon was established by Blake in RHODORA, xvii. 134, footnote (1915), he correctly stating that:

> Although the second volume of Persoon's Synopsis is dated 1807, its first section (pp. 1–272) was issued in the autumn of 1806, as is shown by a review in the Regensb. Bot. Zeit. v. 321 (21 Nov. 1806).

That pushes a large part of Persoon's 2nd volume into competition with other publications of 1806. The resulting changes have not been checked.

My special purpose in the present notes is to draw attention to two other works, one of which seems to have been overlooked by the editors of *Index Kewensis* and by others who have followed that work in assigning many specific names to the wrong author. On May 30, 1807, Johann Friedrich Theodor Biehler issued his doctor's dissertation, printed in Halle. It was entitled PLANTARUM NOVARUM EX HERBARIO SPRENGELII CENTURIAM . . . and it was reviewed in the Regensburg Botanische Zeitung for 15 October, 1807; in other words it was definitely published in late spring or summer of 1807. Biehler having done a piece of descriptive work considered by Sprengel sufficient for his thesis, Sprengel promptly absorbed it and as the second part of his own Mantissa Prima (pp. 27–58) put it out under his own name as *Novarum Plantarum ex Herbario meo Centuria.* The latter work, containing Biehler's unacknowledged descriptions and differently paged, did not come out in time to be reviewed in the Botanische Zeitung for 1807. Biehler's original publication was clearly the earlier of the two; yet all of the 100 species described are regularly cited from the second publication and Sprengel is as regularly and unjustifiably cited as the author. Some of the proposed species were described from garden plants, others from India, New Caledonia, New Zealand, St. Helena, The Caucasus, Cuban, Mongolia, etc., while a few were from North America, chiefly received from Muhlenberg. Since these, as well as the Old World species, have been regularly cited as of Sprengel, I am here noting such in our own flora as require the replacement of that author's name by Biehler's.

SCIRPUS LUPULINUS Biehler, Plant. Nov. Herb. Spreng. Cent. 4 (1807); Spreng. Mant. Prima Fl. Hal. 30 (1807). Generally identified with *Cyperus filiculmis* Vahl (1806).

PANICUM PENSYLVANICUM Biehler, l. c. 6 (1807); Spreng. l. c. 31 (1807). Not identified; type needs examination.

P. DISCOLOR Biehler, l. c. (1807); Spreng. l. c. (1807). Type needs critical examination.

POLYPOGON SETOSUS Biehler, l. c. 7 (1807); Spreng. l. c. (1807). Basis of MUHLENBERGIA SETOSA (Biehler) Trin. ex Jackson, Ind. Kew. iii. 209 (1894); Fernald in RHODORA, xlv. 237, plates 755 and 756 (1943).

AGROSTIS CLANDESTINA Biehler, l. c. 8 (1807); Spreng. l. c. 32 (1807). Basis of SPOROBOLUS CLANDESTINUS (Biehler) Hitchc. in Contrib. U. S. Nat. Herb. xii. 150 (1908).

AIRA NITIDA Biehler, l. c. 8 (1807); Spreng. l. c. 32 (1807). Basis of SPHENOPHOLIS NITIDA (Biehler) Scribn. in RHODORA, viii. 144 (1906).

A. PALLENS Biehler, l. c. (1807); Spreng. l. c. (1807). Basis of SPHENOPHOLIS PALLENS (Biehler) Scribn. l. c. 145 (1906).

POA CAROLINIANA Biehler, l. c. 10 (1807); Spreng. l. c. 33 (1807). Basis of ERAGROSTIS CAROLINIANA (Biehler) Scribn. in Mem. Torr. Bot. Cl. v. 49 (1894).

Although Hitchcock reduces *Poa caroliniana* to the synonymy of *Eragrostis pectinacea* (Michx.) Nees, emend., and illustrates the "linear" spikelets as 10–15-flowered, the original description of *P. caroliniana* called for "spiculis lanceolatis . . . quinquefloris". The "ligula abbreviata obtusa" of *P. caroliniana* does not well describe the long tuft of hairs at the orifice of the sheath in *E. pectinacea*. The type needs critical examination.

Festuca nutans Biehler, l. c. 10 (1807); Spreng. l. c. 34 (1807), not Moench (1794) and F. obtusa Biehler, l. c. 11 (1807); Spreng. l. c. (1807).

Since *Festuca nutans* of Sprengel (*i. e.* Biehler) has generally been referred to *F. obtusa*, it is noteworthy that both Biehler and Sprengel (neither of whom were "splitters") described them both "*E. Pensylvania. Mühlenberg*". Their *F. nutans* was strict, 3 feet high, with lanceolate leaves, the panicle erect but nodding at summit; the ovate-oblong, obtuse spikelets 5-flowered, the oblong glumes muticous; the grain oblong. *F. obtusa* had decumbent, geniculate and weak culms and glaucous, linear leaves; the panicle "aequali" (evidently equaling the culm), flaccid, with few spikelets, these pedicellate, oblong and 3-flowered, the unequal glumes much smaller than the lemmas. In other words, *F. obtusa* was the familiar, weak and usually sprawling plant with usually 3-flowered spikelets and soon diffuse panicle which correctly passes under that name (incorrectly as of Sprengel instead of Biehler); while for *F. nutans* Biehler gave a good description of *F. paradoxa* Desv. Opusc. 105 (1831) or *F. Shortii* Kunth ex Wood, Class-bk. 794 (1861), a species long known to grow in Muhlenberg's area, about Lancaster. The earlier *F. nutans* Moench (1794) invalidates *F. nutans* Biehler.

Epilobium coloratum Biehler. l. c. 18 (1807); Spreng. l. c. 39 (1807); Muhl. ex Willd. Enum. Hort. Berol. 411 (1809).

Although *Index Kewensis* caught the Sprengel citation of 1807, it entered it as somehow secondary to that of Muhlenberg ex Willdenow (1809) and quite overlooked the earlier publication of Biehler, based on material sent by Muhlenberg to Sprengel. Biehler's detailed description in 12 lines is much more decisive than the 2-line diagnosis of Muhlenberg ex Willdenow. The easy-going faith in "authority" is illustrated by the regular taking up of *E. coloratum* as of Muhl. ex Willd. (1809), with the 1807 publication of the species by Sprengel (who absorbed it from the still earlier Biehler) as a secondary citation only. There seems to be no escape from writing E. coloratum Biehler.

Scutellaria incana Biehler, l. c. 25 (1807); Spreng. l. c. 44 (1807).

Sprengel as the author must give way to Biehler. The plant was received from Muhlenberg as his *S. pubescens* Muhl. in Trans. Am. Phil. Soc. iii. 173 (1793), *nomen nudum*, but, published as a synonym of *S. incana*, it should have the following additional references: *S. pubescens* Muhl. ex Biehler, l. c. (1807) as synonym; Spreng. l. c. (1807) as synonym.

S. ELLIPTICA Muhl. ex Biehler. l. c. 26 (1807); Spreng. l. c. 44 (1807); but originally and legitimately published by Muhl. in Trans. Am. Phil. Soc. iii. 173 (1793).

S. elliptica Muhl. (1793) must take the place of *S. ovalifolia* Pers. Syn. ii. 136 (1806), the *S. pilosa* Michx. (1803), not Hill (1768). In his *American Species of Scutellaria*, Univ. Calif. Pub. Bot. xx. no. 1: 86 (1942), Epling cited *S. ovalifolia* as of Persoon (1807) but, as noted on p. 197, the first section of Pers. Syn. ii. came out in 1806. Under his needless *S. ovalifolia*, subsp. *mollis* Epling, l. c. (based on the same type as *S. ovalifolia*) he cites the valid publication of *S. elliptica* as starting with Sprengel, l. c., "probably based upon a specimen sent by Muhlenberg". Sprengel, literally copying from Biehler, left no "probably" in the matter since he definitely gave Muhlenberg as the author: "Sc. elliptica Mühlenb. *in lit.*", the plant "E. Pensylvania".

In the same treatment Epling cites as a synonym *S. elliptica* Muhl. in Trans. Am. Phil. Soc. iii. 173 (1793), "nomen nudum". Now, although most of the new names published by Muhlenberg in his *Index Florae Lancastriensis*, Trans. Am. Phil. Soc. iii. 157–184 (1793) and in his *Supplementum Indicis Florae Lancastriensis*, l. c. iv. 235–242 (1799) were merely *nomina nuda*, in a very few cases Muhlenberg based his species on plants collected by Clayton and described by Gronovius in his Flora Virginica, ed. 2 (1762) or described by Marshall or others. If the species of Linnaeus (or his contemporaries), based wholly on earlier polynomials of himself or others are valid, then, surely, Muhlenberg's binomials, given to clearly cited and earlier described plants of others are equally valid. In the case of *Scutellaria elliptica* Muhl. in Trans. Am. Phil. Soc. iii. 173 (1793) Muhlenberg was definite:

> Scutellaria elliptica, Claytoni. 92. N. S.

That, expanded, is *S. elliptica* of Clayton (or Gronovius), Fl. Virg. ed. 2: 92 (1762). Turning to Gronovius (or Clayton) we find on p. 92 only one species of *Scutellaria*, described in perfectly clear terms:

> SCUTELLARIA *foliis ovatis, utrinque acutis, obtuse serratis.*
> Scutellaria virginiana foliis dentatis. *Moris. hist.* III. *p.* 416. *t.* 19. *f.* 3.
> Cassida foliis Betonicae, flore ex albo & violaceo variegato. *Clayt. n.* 758.
> OBS. *Bracteae seu folia floralia parva, ovata integerrima, corollis dimidio breviora.*

That is a perfectly good account of the common plant of eastern Virginia which has passed as *Scutellaria pilosa* Michx. and which has recently passed as *S. ovalifolia* Pers. Aside from the Clayton material, no. 758, Morison's *Scutellaria virginiana foliis dentatis* was cited. Morison's account and figure (Sect. 11, t. 19, fig. 23, miscited by Gronovius), were perfect, the latter showing the characteristic rhombic-oval leaves, and the description was adequate. Surely, when Muhlenberg based his *S. elliptica* upon such antecendent descriptions and figure he was not publishing a "nomen nudum". It may be inconvenient, but there seems to be perfectly sound reason for taking up

SCUTELLARIA ELLIPTICA Muhl. in Trans. Am. Phil. Soc. iii. 173 (1793); ex Biehler, Plant. Nov. Herb. Spreng. Cent. 26 (1807); ex Spreng. Mant. Prim. Fl. Hal. 44 (1807). *S. integrifolia* L. Sp. Pl. 599 (1753), excl. Gronovian citation. *S. pilosa* Michx. Fl. Bor.-Am. ii. 11 (1803), not Hill (1768). *S. ovalifolia* Pers. Syn. ii. 136 (1806). *S. nemorosa* Raf. in Am. Mo. Mag. ser. 2. ii. 120 (1817). *S. teucrifolia* J. E. Sm. in Rees Cycl. xxxii. no. 15 (1819). *S. pilosa*, var. *ovalifolia* (Pers.) Benth. in DC. Prodr. xii. 423 (1848), nomenclaturally based on *S. ovalifolia* Pers. (which, according to Epling, l. c. 86, was "based apparently upon Plukenet's figure" of a plant from Virginia, so that it is difficult to follow him in his statement that *S. pilosa*, var. *ovalifolia* (Pers.) Benth. had its "type collected in New Jersey near Princeton (N. Y. Bot. Gard.)". It is probable that the Princeton specimen which Bentham cited, not as a "type", is in the Bentham or the DeCandolle Herbarium). *S. ovalifolia*, subsp. *mollis* Epling, l. c. 86 (1942).

The taking up of SCUTELLARIA ELLIPTICA forces the following change:

SCUTELLARIA ELLIPTICA Muhl., var. **hirsuta** (Short), comb. nov. *S. hirsuta* Short in Transylv. Jour. Med. viii. 582 (1836). *S. pilosa* Michx., var. *hirsuta* (Short) Gray, Syn. Fl. N. Am. ii^1.

379 (1878). *S. ovalifolia* Pers., subsp. *hirsuta* (Short) Epling, l. c. 86 (1942). *S. ovalifolia* Pers., var. *hirsuta* (Short) Fernald in Rhodora, xliv. 433 (1942).

It is in some ways fortunate that *Scutellaria elliptica* of Muhlenberg (1793) is so clearly applicable for we are thus saved from the complication started when Linnaeus became confused in publishing *S. integrifolia* L. Sp. Pl. 599 (1753). His account was as tangled as was his understanding of hosts of other American plants:

> 6. SCUTELLARIA foliis sessilibus ovatis: inferioribus obsolete serratis; superioribus integerrimis. *integrifolia.*
> Scutellaria foliis integerrimis *Gron. virg.* 67.
> Scutellaria caerulea virginiana, lamii aut potius teucrii folio, minor. *Pluk. alm.* 338. *t.* 313. *f.* 4.
> Scutellaria, teucrii folio, marilandica. *Raj. Suppl.* 310.
> *Habitat in* Virginia, Canada.

This was immediately followed by

> 7. SCUTELLARIA foliis lanceolatis. *Gron. virg.* 167. *hyssopifolia.*
> Cassida mariana hyssopifolia. *Pet. act. angl.*
> *Habitat in* Virginia.

The diagnosis "foliis . . ovatis: inferioribus obsolete serratis", the Plukenet description and drawing and the Ray account all belong to the plant above discussed as *S. elliptica*, while the Gronovian account and the Clayton specimen (photograph, × 1, before me) from which Linnaeus got the epithet *integrifolia* are of the plant currently so called; while the type of *S. hyssopifolia* (photograph, × 1, before me) is only a narrow-leaved individual of our familiar *S. integrifolia*. Neither element of the bipartite Linnean species is known from Canada!

Now, a complication might seem to arise from the treatment by J. E. Smith in Rees Cyclopaedia, xxxii. nos. 15 and 16 (1819). There Smith, possessor of the Linnean Herbarium, pointed out the original confusion, described as new *S. teucrifolia*, the ovate- and obsoletely serrate-leaved element of the Linnean bipartite *S. integrifolia* (excluding the entire- and narrow-leaved plant of Gronovius), and concluded, regarding the name *integrifolia*, "This appellation, however, being erroneous, and having caused much confusion among subsequent botanists, is best laid aside, and we have preferred one taken from the very apt synonyms of Plukenet and Ray." And, forthwith, Smith reduced to *S. hyssopifolia* L. (1753) the Gronovian element, "S. foliis integerrimis", of the original *S. integrifolia*. On its surface, since *S. hyssopifolia* was of the same date as *S. integrifolia*, that would seem to dispose of the latter in the current sense, since it was reduced by Smith to *S. hyssopifolia*.

Further search, however, shows that Michaux, Fl. Bor.-Am. ii. 12 (1803), had already restricted *Scutellaria integrifolia* to the plant with all but the lowest leaves "oblongis, integris" and clearly said under it: "*S. hyssopifolia*. L. hujusce varietas est". Aiton went further in Hort. Kew. ed. 2, iii. 428 (1811), there taking up *S. integrifolia* "foliis oblongis linearibusve obtusis integris . . . *Linn*. sp. pl. 836. (secundum synon. Gronovii; reliquis exclusis.)" and flatly citing *S. hyssopifolia* as an unequivocal synonym. We are, then, quite right in maintaining *S. integrifolia* as emended by Michaux and by Aiton.[1]

Turning again to Muhlenberg's new names published in his *Index Florae Lancastriensis* and its Supplement, most of them, as stated, are unquestioned *nomina nuda*. Some of them, like "Arabis integrifolia, Clayton 99. n. 745 ?", Muhl. in Trans. Am. Phil. Soc. iii. 174 (1793), must be left as they are because of the doubt expressed by Muhlenberg as to the identity. The following case, unfortunately, is clear.

ULMUS RUBRA Muhl. in Trans. Am. Phil. Soc. iii. 165 (1793).

Muhlenberg was renaming the perhaps misidentified *Ulmus americana* of Marshall:

> Ulmus rubra. N. S. americana, Marshalli.

There is no question as to *Ulmus americana* Marshall, Arb. Am. 156 (1785). To the "larger" tree with "leaves . . . smooth on the upper surface, of thinner texture and softer than those of the first kind [Marshall's *U. americana*]. The seed-vessels . . . considerably smaller, end nicked or cleft, and ciliated or fringed on the margin" Marshall gave a new name, *U. mollifolia*. This, of course, was *U. americana* as commonly interpreted. Marshall's second species was

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[1] Pursh, who got many clues from the more scholarly Flora Boreali-Americana of Michaux, took the hint conveyed by Michaux's statement under the emended *Scutellaria integrifolia*, "*S. hyssopifolia*. L. hujusce varietas est" and, in Pursh, Fl. Am. Sept. 413 (1814), formally made the varietal combination *S. integrifolia* β. *hyssopifolia*. This varietal combination is ascribed by Epling, l. c. 90, to "Millsp., Fl. W. Va. 427, 1892"; but Millspaugh simply listed the name without even any author and with no word of diagnosis nor bibliography.

> Ulmus americana. *American rough leaved Elm-Tree,* rises to the height of about thirty feet, . . . with a lightish coloured rough bark. The leaves are oblong, oval and sharp-pointed, somewhat unequally sawed at the edges, . . . very rough on their upper surface and hairy underneath. The flowers are produced thick upon the branches, upon short, collected footstalks; and are succeeded by oval, compressed, membranaceous seed-vessels, with entire margins.

That is certainly Slippery or Red Elm, *Ulmus fulva* Michx. Fl. Bor.-Am. i. 172 (1803) the species which was later and independently described as *U. rubra* Michx. f., Hist. Arb. Am. iii. 278, t. 6 (1813). The younger Michaux, although not accepting the name given by his father but preferring to give a new one, unwittingly used the earliest name for the species, for there seems no way to avoid taking up for *U. fulva* Michx. (1803) the much earlier U. rubra Muhl. (1793).

An Incomplete Flora of Illinois.—It is a subject for special note when one of our larger Universities produces what purports to be a "comprehensive treatment" of the flora of its state, and especially when another university in a neighboring state sponsors its publication. The state of Illinois has had in the past some very learned or scholarly students of its flora, for, although today, to the traveler who passes hastily across it, the state often looks botanically rather uninspiring, that was not always the case. Writing in 1882, the very keen and always helpful student of the flora of Illinois and neighboring states, the late M. S. Bebb[1], in his discussion of *Recently Introduced Plants in and about Rockford, Ill.,* said "I remember well . . . how here in Rockford, Ill., say twenty years ago, the indigenous plants of the prairie and oak-opening sprang up on every side in close proximity to the beaten paths of busy men. The industrious young botanist, collecting for exchange, found his only limitations in the quantity of driers he possessed, and the amount of time, energy and discretion he could bring to the work of using them well. Now we must go miles out into the country for material and count ourselves fortunate, even then, if the little vestige of the native flora which last season afforded us a dozen desirable specimens has not since been swept away by the plow; while in the central portion of the city scarcely a single native species remains to dispute possession with street weeds, mostly of European descent and training." Now, more than 60 years later, the native flora is still further diminished and that of "European descent and training" greatly increased.

The first botanist to explore Illinois was the greatest of them all, André Michaux, who, descending the Ohio in 1795, camped on the lower Wabash and then proceeded westward to the Mississippi, making a center at Kaskaskia and botanizing up and down the Mississippi and along the lower Ohio from August to October. This great pioneer in American botanical exploration

[1] Bot. Gaz. vii. 68–90 (1882).

carried his material back to Paris, where the great collection has long been available for ready reference. Michaux's monumental Flora Boreali-Americana (1803) contained scores and scores of records from Illinois and more than 60 new species with their TYPES from the southern portion of that state—the greatest series of new species of vascular plants ever collected by one man in Illinois.

After Michaux, the first three-fourths of the last century saw some remarkably strong botanists collecting assiduously or writing authoritatively upon the floral areas and the native and introduced plants of Illinois. Some, like the erratic Rafinesque or the learned and careful Louis C. Beck, who wrote as an introduction to his *Contributions toward the Botany of the States of Illinois and Missouri* (1826–28), "During my residence in Missouri in . . . 1820, 21, and 22, a portion of my time was occupied in the investigation of the vegetable productions of that and the adjoining state", came from outside. Others, like Samuel B. Mead, were content to collect discriminatingly and to refer their problems to masters at the older centers, with the result that we have a noble series of species, such as *Carex Meadii*, *Asclepias Meadii* and others discovered and modestly communicated by him. One of the first extensive lists of Illinois plants as such (Engelmann's *Catalogue of a Collection of Plants made in Illinois and Missouri by Charles A. Geyer* not discriminating often between the two states) was the cautious and very reliable *Catalogue of the Plants of the State of Illinois* (1856–57) by Dr. Increase A. Lapham, an amateur scientist of such scholarship and precision that he was awarded what few amateurs ever have received, one of the most distinguished honors open to American scholars, election to the American Philosophical Society. Besides his Catalogue of more than 1125 vascular plants then known in the state, Lapham published one of the most critical and accurate series of descriptions up to his time of *Native, Naturalized and Cultivated Grasses of the State of Illinois.* Another great scholar, Frederick Brendel, published in the Zeitschrift für die Gesammten Naturwissenschaften, xv. (1860) his *Verzeichniss der in Illinois wildwachsenden phanerogamischen und cryptogamischen Gefässpflanzen*, a catalogue of nearly 1200 species. This was followed by the publication at Budapest in Természetrajzi Füzetek, v. (1882) of his remarkably helpful *Flora Peoriana, die Vegetation im Clima von Mittel-Illinois.* This contained more than 1360 species, with indication of the geographic areas of the state where it occurred: if not near Peoria, then along the Mississippi ("Am Mississippi"), in the region of the Ohio ("Im Ohiogebiet"), along Lake Michigan ("Am Michigan-See"), etc. Here were the first records for a great number of plants in Illinois, with a scholarly discussion of the natural floral areas, a model of scientific presentation. Then, in English, Brendel published (1887) his *Flora Peoriana, the Vegetation in the Climate of Middle Illinois*, "the result of thirty-five years observations". To these add Patterson's Catalogue in 1876, Flagg's in 1878 and very many local floras and notes (a few of them cited in the bibliography of the new *Flora of Illinois* (1945)). George Vasey, Henry Eggert, E. J. Hill, M. S. Bebb, F. E. McDonald, Robert Ridgway and many others added materially to the published Catalogues, and John Wolf, too modest to publish, enriched our knowledge very materially, sending to others the specimens upon which were based such very unusual species as *Poa Wolfii* and *Eleocharis Wolfii.*

With such a background of sound enumerations of the vascular plants of the state or of sections of it, the student in 1945, hearing that a professor at the University of Illinois has published through Notre Dame University a new and up-to-date *Flora of Illinois*, naturally looks forward to an accurate recension of all this assembled matter. If, however, he has known these scores of discriminating lists and as many technical studies of genera or sections of genera in our flora, most of which I had long since had to digest in revising the Manual and which, consequently, were largely right at hand, he is in for a great disappointment. Therefore, when the editor of the new *Flora of Illinois*, by George Neville Jones,[1] asked me to review the book in RHODORA, I was obliged to write him that he had assigned me an unwelcome and highly unpleasant task. Of course some reviewers would easily say "It is finely printed, neatly bound and has very simple keys. It is, therefore, a great book". But, in view of the great mass of accurate data which has been neglected but which I had already taken into account in my own work, I cannot stop there; and I am sure that the more experienced living botanists of Illinois must react in the same way.

The first part of the book is made up of speciously simple keys—specious because they are so likely to mislead. On p. 8, Section 1 is defined as "1. Plants grasses, sedges, or rushes; perianth green or absent". How in the world does the beginner know whether the plant is a grass, sedge or rush, merely because it has a green perianth, or none? Scouring Rush (not a grass, sedge or rush) has no flowers. Turning to the fuller detail of Section 1 we are given the following key:

Section 1. Grasses (or Grass-like Plants), or Sedges, and Rushes

1. Flowers enclosed by chaffy scales; perianth none, or of bristles; fruit a grain or an achene.
    2. Stem usually cylindrical [etc.]........................22. GRAMINEAE
    2. Stem cylindrical or triangular. . .; fruit an achene...23. CYPERACEAE
1. Flowers not enclosed by chaffy scales; perianth 6-parted; stems terete; fruit a capsule.
    3. Stem not glandular.................................30. JUNCACEAE
    3. Stem glandular...........................*Tofieldia* in 31. LILIACEAE

Now, if the uninitiated get hold of almost any species of *Fimbristylis* or of *Cladium*, for instance, he will find the flower *subtended by* but not "enclosed by" a scale (in most *Gramineae* the "*enclosing*" is complete, but not in most *Cyperaceae*, except *Carex*); if he gets *Fuirena* he will find, as Dr. Jones states, on p. 69, a "perianth of 3 stalked sepals". And how can he know, when he gets green-flowered *Stenanthium gramineum*, with flowers constructed like those of *Juncus*, or of *Zigadenus* or Yellow-eyed Grass, *Hypoxis*, with their green-backed perianths appressed to the fruit, that it is not a grass-like plant with "perianth 6-parted; . . . fruit a capsule"? Furthermore, when he gets hold of a *Juncus* of the *Prophyllate* series (with chaffy scales "enclosing" the bases of the flowers) how can he be sure that they don't? And as to the perianth of the *Juncaceae* being "green", only the green beginner will try to hold his Rushes to that definition. Just look at the brown or fulvous outer tepals (sepals) of many species of *Juncus* or of *Luzula!*

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[1] GEORGE NEVILLE JONES: Flora of Illinois, containing keys for identification of the flowering plants and ferns. The American Midland Naturalist, Monograph No. 2. University of Notre Dame, Notre Dame, Indiana (1945). 317 pp. $4.00.

Having learned (we hope) that some plants with grass-like leaves and green perianths are not necessarily Rushes, the beginner tries another lot of specimens. He has come in from the dunes of Lake Michigan with a slightly frutescent little gray-pubescent plant with tiny scale-like leaves and bright yellow petals, surely an Angiosperm. Imagine his shock, if he has had even an elementary training in morphology, to find it placed with the Gymnosperms! The only excuse for here placing *Hudsonia* is that Gymnosperms are trees and shrubs with "Leaves needle-like (acicular), scale-like, or subulate, evergreen", though admittedly deciduous in *Larix* and *Taxodium* (in which some of the leaves are flat, as they are in *Tsuga!*). Certainly if the barely shrubby *Hudsonia* can be placed (with apologies, to be sure) with the Gymnosperms, then bushy-branched, though herbaceous *Asparagus* could be placed there; and why not *Belamcanda* with its naked seeds or *Reseda* with its seeds maturing in an open barrel-like capsule (*Reseda* is wild in Illinois, though not cited in the book). After struggling, to the point of inaccuracy or near-absurdity not to use technical terms, why give up and suddenly, in the keys, expect the ignorant beginner to understand "stamens hypogynous", "Corolla not papilionaceous", "corolla sympetalous"? If the student understands these terms he doesn't need the misleading pap.

Now to the Flora itself. Dr. Jones here carries out his oft-expressed admiration of Rydberg's inability to distinguish between species, varieties and forms. Consequently many plants which some pretty sound taxonomists rank as varieties or as mere forms (without different ranges) are here treated as species. In general, varieties and forms are not even mentioned but sometimes their names are bracketed as synonyms of the maintained specific one: under *Lathyrus*, for instance, "[*L. venosus* var. *intonsus* Butters & St. John] . . . *L. venosus* Muhl."; or under *Acalypha* "[*A. gracilens* var. *fraseri* (Muell. Arg.) Weatherby] . . . *A. gracilens* Gray". In at least three cases, however, the offending varieties or forms are not bracketed. These are under *Prunus virginiana* "The form with the lower surfaces of the leaves, young twigs, and rachis of inflorescence pubescent is f. *deamii* G. N. Jones"; under *Gleditsia triacanthos* "The spineless form is f. *inermis* (Pursh) Fassett"; and under *Psoralea psoralioides* "The plants of the Central States are less glandular and have been named *P. psoralioides* var. *eglandulosa* (Ell.) F. L. Freeman". When one notes that the combination under *Gleditsia* was used by Schneider in 1907, he has left as authors of an accepted form and an accepted variety G. N. Jones and F. L. Freeman (now Mrs. G. N. Jones). That is "keeping up with the Joneses" with a vengeance!

In carrying through his Rydbergian principle of species or nothing Dr. Jones treats the American variety of the circumboreal *Scheuchzeria palustris* as a species, *S. americana* (Fern.) Jones. Why stop there? Are not the American varieties of other circumboreal species quite as eligible? They are; but it is devoutly hoped that they will not be elevated to specific rank without sound morphological characters: our *Eleocharis pauciflora*, var. *Fernaldii* Svenson, *Scirpus cespitosus*, var. *callosus* Bigelow, *Juncus effusus*, var. *solutus* Fern. & Wiegand, *Menyanthes trifoliata*, var. *minor* Michx. ex Raf., etc., etc. But, if the *Eleocharis* is so treated, I hope against hope that its specific name will be allowed to retain its capital initial. In the new *Flora of Illinois* all personal genitives and all old generic names used as specific ones are decapitalized, in violation of good usage and in spite of the recommendation of the International Rules. Essentially all botanists of scholarly background, from Linnaeus down, have shown their understanding by using the capital; it was regularly used, even by Rafinesque, and by Torrey, Engelmann, Gray, Britton, Small and Jones's usual model, Rydberg, while the very distinguished founder of the American Midland Naturalist, Nieuwland, was too great a scholar to decapitalize such names.

Incidentally, followers of the new *Flora* should be warned against untenable specific names there used. Such a name as *Agropyron pauciflorum* (Schwein.) Hitchc. (1933 or '34) should not be used. There was already an *A. pauciflorum* Schur (1859); a matter discussed in Rhodora, xxxvi. 417–419 (1934) and again noted in xxxvii. 372 (1935).

In this *Flora* 2124 species and pseudo-species are enumerated as occurring in Illinois but, if the compiler had taken into account the published Illinois records, the number would be nearer 2325. It is unfortunate that the old and pretty sacred principle of state's rights should have been transgressed in making up the deficient total. For instance, *Eriocaulon septangulare* is formally entered (and presumably counted), with the Illinois occurrence stated as "Borders of ponds and lakes. Pepoon says ' . . . from East Chicago eastward'". That suggests Illinois to those who do not know local geography, but we learn over the radio, from the "Quiz Kids", that East Chicago is in Indiana, a fact corroborated by the Postal-Guide and the Atlas!; and Jones himself adds apologetically: "Locally abundant in northern Indiana, but no Illinois specimens seen". I have not taken the time to figure how many other species got entered without sustaining credentials. It is very certain, however, that fully 200 species or strongly defined geographic varieties with the best of credentials were not admitted to the official registration. Some of these, like *Scirpus Hallii* Gray, were christened from Illinois material and even named for Illinois botanists; others have merely been well known to grow there. Toward the end of the volume there is a brief bibliography in which a part, but scarcely half, of the papers or reports upon Illinois plants are cited. It is, then, to be regretted that the contents of even these, to say nothing of many other authoritative publications, were not more generally accepted or understood. Many of the names used in older reports are not now (since the principle of priority of specific names, instead of the first combination of generic and specific, came into vogue) known to the "younger generation"; but they should be quite identifiable by any one competent to rank as an authority on the flora. Even the great initial contribution of Michaux to our knowledge of the Illinois flora is quite ignored, for such an obvious grass as *Bouteloua curtipendula* (Michx.) Torr. is credited to "the n. half of Ill." only, although the type of the basic *Chloris curtipendula* Michx. was from Wabash. In fact, as already noted, more than 60 of Michaux's species had their types from

Illinois. They were known to Lapham, Brendel and their really careful followers; but since, on the first page of the present *Flora* we are told that "no comprehensive treatment of the botany of this state has hitherto been published", it is just too bad that so much of the work of Michaux and so many records of his successors were not included and, by implication, not comprehended. *Agrostis* [*Muhlenbergia*] *racemosa* Michx. is the bushy-branched species found on the driest of habitats from bluffs of the Mississippi across the Plains (not the simple-culmed species of bogs and wet shores); and, although Jones thinks *Croton capitatus* Michx. "probably adv. from s. U. S.", Michaux, discovering it in 1795 and describing it as a new species, did not so consider it; and the unique (and by Hitchcock wholly misunderstood) *Erianthus brevibarbis*, with its TYPE from southern Illinois, should have had due recognition; so should the conspicuous *Cardiospermum Halicacabum* which Michaux got near Kaskaskia. Furthermore, *Heteranthera limosa* (not in the new *Flora*) was beautifully illustrated and described as a new species, *Leptanthus ovalis*, by Michaux from "paludosis Illinoensibus".

Even though the author of a "comprehensive" state-flora may not have known the early history of botanical exploration of his region, he certainly knew of some catalogues and lists; at least he cites in the bibliography some of those of Brendel, Gleason, Higley & Raddin, E. J. Hill, Lapham, Mosher, E. J. Palmer and Patterson, as well as numerous others. Practically every one of the reports or papers of the above-mentioned students of the flora contains from 1 to 50 or more species not accounted for by the compiler of the "comprehensive" *Flora*. Even one of the very latest papers cited by him, E. J. Palmer's *Botanical Reconnaissance of southern Illinois* (1921), which, although cited, was apparently not carefully digested, would have yielded 28 additions to the *Flora: Justicia humilis* (*Dianthera ovata*), *Spilanthes americana, Corallorrhiza Wisteriana, Eupatorium incarnatum, Talinum calycinum, Vaccinium tenellum, Carya Pecan, Tilia floridana*, etc., etc. Since Palmer's report was primarily upon the trees, with herbs and shrubs only incidentally mentioned, one can only imagine the many other species new to Illinois in his extensive and discriminating collections. And when, as in *Strophostyles umbellata* (see p. 216) the author himself collected, correctly identified and distributed species but did not admit them to his *Flora*, it is evident that something slipped.

All this is very sad; one is sadder that it seems necessary to point it out. When the *Flora of Illinois* first came to my desk I expected a worthy book. Soon discouraged, as its inadequacy became more and more apparent, I jotted down a few (toward 100) members of the *Monocotyledoneae* and the *Archichlamydeae* (not attempting *Carex, Crataegus* and *Rubus*) which, although I had never been in Illinois except to lecture in Chicago, I knew to occur in that state. These memoranda, sometimes with some (but not all) supporting citations, were written out; then I balked. I had made no contract to prepare a new flora of the state. However, having made the partial enumeration, I here present it. It is obviously very incomplete and were the *Metachlamydeae* added one would have to start right out with such obvious omissions as *Lysimachia hybrida* Michx., *Fraxinus biltmoreana* Beadle, *Sabatia campestris* Nutt., and so on to *Sonchus uliginosus* Bieb. It is altogether too evident that here is another case of "boom-town" construction, the big-fronted upper story constructed without serious consideration given the necessary foundations.

A PARTIAL SUPPLEMENT TO THE "FLORA OF ILLINOIS", MADE FROM A DESK-TOP IN MASSACHUSETTS

SPARGANIUM ANGUSTIFOLIUM Michx. "McHenry county, Vasey"—Patterson Cat.

NAJAS GRACILLIMA (A. Br.) Morong. "Wabash county, Schneck"—Patterson Cat.; "Im Ohiogebiet", Brendel, Fl. Peoriana (1882).

ECHINODORUS TENELLUS (Mart.) Buchenau. *E. parvulus* Engelm. in Gray, Man. ed. 2:438 (1856); Robinson in RHODORA, v. 85–89, pl. 45, figs. 1–10 (1903). *Helianthium tenellum* (Mart.) Britton, Man. ed. 2: 54 (1904). *H. parvulum* (Engelm.) Small in N. Am. Fl. xvii^1. 45 (1909). "Margin of shallow ponds, Michigan to Illinois and westward"—*Engelm.*, l. c.; "found . . . on the Illinois side of the Mississippi by Dr. Engelmann and by Mr. Henry Eggert"—Robinson, l. c. 89. Clearly cited also by Lapham, Patterson, Brendel and several others.

GLYCERIA STRIATA (Lam.) Hitchc., var. STRICTA (Scribn.) Fern. (*Panicularia rigida* (Nash) Rydb.). Skokie Marsh, Glencoe, June 12, 1911, *Sherff*.

Having been called a species by Rydberg this plant is certainly eligible under Jones's rules, even though only a northern variety.

G. ARKANSANA Fern. Mt. Carmel, 1874, *J. Schneck;* marsh northwest of Glencoe, June 12, 1911, *Sherff*. See RHODORA, xl. 386 (1938).

VULPIA OCTOFLORA (Walt.) Rydb., var. TENELLA (Willd.) Fern. (*Festuca oct.* Walt., var. *tenella* (Willd.) Fern.). Frequent in Illinois: Oakwood, *Pease*, no. 14,713A; between Oakwood and Collison, *G. N. Jones*, no. 13,872; Peoria, *McDonald;* Crawford, *Clokey*, no. 2445; Starved Rock, *Greenman, Lansing & Dixon*, no. 78; Hillery, *Gleason;* etc.

Differing at once from true *V. octoflora* in its lower glumes only 2.3–4 mm. long; awns 1–3 mm. long. This variety (why not, then, a species?) occurs across the continent, from Maine and southern Quebec to southern British Columbia, southward through much of the United States. True *V. octoflora*, described from South Carolina, is decidedly southern, from Florida to Texas, northward to southern New Jersey, southern Illinois (Makanda, *Gleason*), central Missouri and Oklahoma. Its lower glumes are 3.5–4.5 mm. long, the longer awns of the lemmas 3.5–7 mm. long.

Upon much diluter characters than these the author of the *Flora of Illinois* maintains as species in *Panicum* and *Paspalum* plants which pretty accurate and long-experienced students (like Wiegand, Witmer Stone, Deam, Weatherby and others) balk at so dignifying.

AGROSTIS HYEMALIS (Walt.) BSP. (*A. antecedens* Bicknell). See RHODORA, xxxv. 207, 208, pl. 246, figs. 3–5 (fig. 5 from Illinois): "extending north in the interior to . . . Illinois and Indiana."

The numerous sheets of *A, hyemalis*, in flower or fruit, in the Gray Herbarium from Illinois (northern limit of species) were collected in May and early June: Decatur, Peoria, Starved Rock, Glencoe, Marion Co., Hillery, Wady Petra and St. Clair Co. The coarser, later and generally more northern *A. scabra* is not represented from Illinois in the Gray Herbarium. The flowering material from Ohio was collected from July 17 to August 12; from Michigan

July 16 to August 22; from Wisconsin August 31 to September 13. Kneucker's Gram. exsicc. no. 569 from Wady Petra is a good example of *A. hyemalis.*

Higley and Raddin, in their Flora of Cook County, cite *A. scabra* as common there on prairies in July. That may well be the northern species.

MUHLENBERGIA CURTISETOSA (Scribn.) Bush. "Illinois (Clinton)"—Hitchcock, Man. 375.

M. SETOSA (Spreng.) Trin., var. CINNOIDES (Link) Fernald in RHODORA, xlv. 238, pl. 757 (1943). Formerly confused with the stiffly branching *M. racemosa* (Michx.) BSP. of dry bluffs and prairies from Wisconsin and Illinois westward. *M. setosa* (*M. glomerata*) is a much simpler plant of meadows, bogs and wet shores. Its var. *cinnoides* is common in Michigan, Wisconsin and Minnesota. Lapham (like most earlier authors) included them both under his *M. glomerata*, but the plant of "very wet meadows and swamps" was clearly *M. setosa*, var. *cinnoides.* So was Patterson's plant of "Bogs . . . northward".

SPOROBOLUS CANOVIRENS Nash. Much material in Gray Herbarium from Illinois.

Sporobolus canovirens is very distinct from *S. clandestinus* (Biehler) Hitchcock. The type of the latter was from eastern Pennsylvania, the species with terminal panicle 4–10 cm. long, spikelets 6–8 mm. long, palea much prolonged beyond the lemma into a subaristate beak, found on the Atlantic slope from Connecticut to Florida, thence to Mississippi. I have seen none of it from Illinois. The plant of the latter region, *S. canovirens* –(type from Kansas) has the terminal panicle stouter and 0.5–2 dm. long, spikelets 5.5–6 mm. long, with merely acute lemma and palea subequal. It occurs from Indiana and Wisconsin to Kansas and south to Mississippi and Texas. The mere fact that Hitchcock could not see the differences should not forbid its recognition. Miss Edna Mosher, in her discriminating Grasses of Illinois, clearly recognizes *S. canovirens;* and her figures well show the contrasts between it and *S. clandestinus.*

STIPA AVENACEA L. Lapham, in his very accurate study of the Grasses of the State of Illinois, clearly described this species as growing in the state. Both his description and illustration are conclusive. Miss Mosher expresses the same view.

LEPTOCHLOA ATTENUATA Nutt. Metropolis, Massac Co., *Benke,* no. 4679, as *L. filiformis.*

Although Hitchcock reduced outright to *L. filiformis* (Lam.) Beauv. the weaker and more flaccid *L. attenuata,* they are far more distinct than many so-called species separated by him: such fluctuating and intergrading complexes as *Panicum Werneri* Scribn., merely a glabrous or glabrescent *P. lineari-folium,* or *P. xalapense* HBK., with its assigned diagnostic characters hopelessly crossing those of *P. laxiflorum* Lam. *Leptochloa filiformis,* except in the smallest individuals, is commonly 0.7–1.2 m. high, with the leading panicles 1.5–6 dm. long, made up of stiff spikes up to 1.5 dm. long; its glumes merely acute, not at all or but rarely overtopping the 2–4 florets; the grain 0.7–0.9 mm. long. It is a wide-ranging weedy species from the West Indies and Florida to Mexico, north to Virginia, Indiana, Illinois, Missouri and Kansas. *L. attenuata* is weaker and softer, 1–6 dm. high, with the leading panicles rarely 3 dm. long, made up of flexuous spikes 2–11 cm. long; its slender glumes aristate, the 2d overtopping the lemmas, and its grains are 0.4–0.5 mm. long. It occurs from southern Illinois to Louisiana and Texas. Even though its doom has been settled by an edict from Washington it is well to study the plants themselves. If *L. attenuata* is not a good species it is, at least, a very strong (though physically weak and flaccid) variety. The great and wise soil-chemist, Hilgard, decrying the tendency of the uncritical majority to follow blindly and without careful checking the emanations from the government bureau which most concerned his field, used to refer to these uncritical flocks as being "under the divine official afflatus of that head center".

Paspalum laeve Michx. Stations cited by Edna Mosher.

P. setaceum Michx. Cited by Lapham, Patterson and most others, including Miss Mosher (with citation of specimens) but not by Jones.

P. setaceum, var. longepedunculatum (LeConte) Wood (*P. longepedunculatum* LeConte). Definite stations cited by Miss Mosher.

P. Bushii Nash. Stations cited by Miss Mosher.

Echinochloa pungens (Poir.) Rydb. (*E. muricata* (Michx.) Fern.). See Wiegand in Rhodora, xxiii. 57–60 (1921). Illinois specimens cited by Wiegand.

E. pungens, var. occidentalis (Wieg.) Fernald & Griscom. (*E. muricata*, var. *occidentalis* Wieg.; *E. occidentalis* (Wieg.) Rydb.) Type from Grand Tower, Illinois.

E. pungens, var. microstachya (Wieg.) Fernald & Griscom. (*E. muricata*, var. *microstachya* Wiegand; *E. microstachya* (Wieg.) Rydb.). Illinois material cited in Wiegand's original account.

Although Hitchcock (therefore the *Flora of Illinois*) could not see the specific characters which sharply separate the indigenous North American *Echinochloa pungens* from the introduced *E. crusgalli* (L.) Beauv., they were understood by Michaux (and Richard), by Poiret, Wiegand and some others. In the introduced *E. crusgalli* the nodes and rachis of the panicle bear slender bristles, such bristles wanting or few in *E. pungens*. In *E. crusgalli* the spikelets are subglabrous or with appressed setiform hairs on the surfaces, bulbous-based hairs, if present, marginal; while in *E. pungens* the glumes and sterile lemma are more often echinate, with some or all of the trichomes pustular-based. In *E. crusgalli* the coriaceous lemma is obtuse, with a soft and soon withering tip; while in the indigenous *E. pungens* the coriaceous lemma is acuminate or subacuminate to a firm (nonshriveling) tip.

In Illinois *Echinochloa pungens* is represented by three varieties, so different that, when he published them, Wiegand stated that in his first manuscript he had treated them as distinct species but that further study revealed some intergradation. Rydberg had no such hesitation. How torn the recent author must have been between the two culture-heroes, Hitchcock and Rydberg. Had he taken a cue from the scholarly and accurate Dr. Lapham *Echinochloa* might have been differently treated. In 1856 (or 57) Lapham wrote: "The Barn yard grass is a coarse species, introduced from Europe; but we have at least two varieties that are native, growing in moist rich grounds, and along the margins of lakes and streams". Lapham really saw something.

Erianthus brevibarbis Michx. The type, bearing Michaux's label "hab. in collibus desertis ab amnio Wabash ad Ostium Missouri 5 diebus distantibus", which, as indicated in Rhodora, xlv. 248 (1943) was "in southern Illinois, presumably between Jefferson County at the east and Randolph County at the west", was shown in RHODORA l. c. plate 759, while plate 760 showed a modern specimen from a tributary of the Mississippi farther south.

In the same paper (pp. 224–230, plates 749–752) it was shown that the name *Muhlenbergia mexicana* has been wrongly applied and that (pp. 255–258) the name *Andropogon furcatus* Muhl. (1806) was antedated by *A. Gerardi* Vitman (1792). Nevertheless, the *Flora of Illinois* continues the erroneous use of *Muhlenbergia mexicana* and prefers the latest of three specific names for the *Andropogon!*

CYPERUS VIRENS Michx. (*C. pseudovegetus* Steud.). See RHODORA, xlvii. 109, plate 876. Metropolis (gravelly creek-bank), *Gleason*, no. 2242.

FIMBRISTYLIS BALDWINIANA Torr. "west to Illinois", etc., Britton in Britton & Brown, Ill. Fl. ed. 2, i. 321 (1913); undoubtedly correct, there being characteristic material in the Gray Herbarium from eastern Missouri. Cited as *F. laxa*, by Lapham, Brendel and others.

SCIRPUS HALLII Gray. TYPE from "Along ponds, Mason Co., Illinois . . . , *E. Hall*"—Gray, Man. ed. 4, xcix (1863), error for Menard Co. Cited many times subsequently. TYPE in Gray Herbarium.

S. HETEROCHAETUS Chase. "ILLINOIS: Henderson Co., near Oqua[w]ka, *H. N. Patterson;* near Dupond [Dupont], *J. A. Steyermark* 4471; South Eastern Railroad, *H. Eggert* in 1876".—A. A. Beetle in Am. Journ. Bot. xxviii. 693 (1941).

S. RUBRICOSUS Fernald (*S. Eriophorum* Michx., illegitimate substitute-name). Open wet bottomlands, Makanda, *Gleason*, no. 2243 (as *S. lineatus*). Cited by both Patterson and Brendel.

COMMELINA DIFFUSA Burm. f. (*C. nudiflora* sensu many auth., not L.). Mound City, Aug. 1, 1862. *Geo. Vasey* (as *C. virginica*). Also cited by others from southern Illinois.

C. ERECTA L., var. ANGUSTIFOLIA (Michx.) Fernald in RHODORA, xlii. 439 (1940). Including *C. angustifolia* Michx., *C. Nashii* Small and *C. crispa* Wooton & Standley (enough binomials to make it eligible to the *Flora of Illinois*). Wooded dunes, Bath, Aug. 17, 1903, *Gleason:* Chandlerville, Aug. 13, 1886, *A. B. Seymour;* east of Havana, *Evers, Jones & Jones*, no. 588.

C. ERECTA, var. DEAMIANA Fernald, l. c. 440, pl. 631 (1940). Oquawka, *Gleason.*

HETERANTHERA LIMOSA (Sw.) Willd. Ponds, St. Clair Co., Aug. 2, 1877, *Eggert.* Lapham (Cat.) cited it in 1857 but his material was cited in Gray, Man. ed. 2: 485 (1856) from "Illinois". In fact, the Illinois records go way back to Michaux's Flora (1803), the Illinois material collected in 1795. Michaux described and illustrated (plate 5) *Heteranthera limosa* as a new species, *Leptanthus ovalis*, "*HAB.* in paludosis Illinoensibus. Augusto florens".

JUNCUS BREVICAUDATUS (Engelm.) Fernald (*J. canadensis*, var. *coarctatus* Engelm.). Cited by Patterson from Kankakee County; also cited by Brendel.

J. DEBILIS Gray. Cited by Patterson from "Southern Illinois".

CHAMAELIRIUM LUTEUM (L.) Gray. "Illinois"—Gray, Man. ed. 2: 478 (1856); also cited by Patterson and by Brendel. Fine specimen from Abingdon in Gray Herb.

SMILACINA TRIFOLIA (L.) Desf. Patterson (1876), Brendel and Higley & Raddin cite stations in northern Illinois.

SPIRANTHES LUCIDA (H. H. Eaton) Ames. "Menard county, Hall"—Patterson Cat.; "Among the drift hills near Mokena, south of Chicago . . . two specimens found"—E. J. Hill in Bull. Torr. Bot. Cl. xxvi. 306, 307 (1899). In both cases called *S. latifolia*, thus apparently unrecognized by the author of the new *Flora.*

MALAXIS BRACHYPODA (Gray) Fernald. *Microstylis monophyllos* sensu e. Am. auth., not (L.) Lindl. "Swamps. Menard county, Brendel; Elgin, Kane county, Vasey"—Patterson Cat.

SALIX LONGIPES Shuttl., var. WARDI (Bebb) Schneid. "In Illinois . . .

in St. Clair and Madison Counties"—Schneider in Journ. Arn. Arb. i. 28 (1919).

S. missouriensis Bebb. Little Wabash bottoms, Richland County, *Robert Ridgway*, no. 1580; "It occurs in Illinois along the Ohio River near its junction with the Mississippi"—C. R. Ball in Deam, Shrubs of Ind. 52.

Carya glabra (Mill.) Sweet, var. megacarpa Sarg. (*C. megacarpa* Sarg.). "Tunnel Hill, Johnson County"—Sargent, Trees and Shrubs, ii. 201.

Although later ranked as a strong geographic variety, this tree was originally treated as a species. That makes it eligible.

C. Buckleyi Durand, var. arkansana Sarg. (*C. arkansana* Sarg.), "southern Illinois"—Sargent, Man. Trees N. A. ed. 2: 199 (1922). Cited by Ridgway and others.

Fagus grandifolia Ehrh., var. caroliniana (Loud.) Fern. & Rehder. The tree of southern Illinois is so distinct from true northern *Fagus grandifolia* that it stands well apart. Clearly cited by E. J. Palmer.

Alnus glutinosa (L.) Gaertn., "naturalized in some places south of Jackson Park. It has spread into the wet land, making thickets . . . They fruit when at the height of four to six feet"—E. J. Hill in Bot. Gaz. xxi. 121 (1896). That sounds like naturalization.

Ulmus serotina Sarg., "southwestern (Grand Tower, Jackson County, *H. A. Gleason*) and southern Illinois (Richland County, *R. Ridgway*)"—Sargent, Man. Trees N. Am. ed. 2: 316 (1922).

Iresine rhizomatosa Standl. (*I. celosioides* Michx., not L.). "Im Ohiogebiet", Brendel, Fl. Peor. (1882). Cited by others.

Spergularia marina (L.) Griseb. "Chicago, . . . *Moffat* 283"—Ruth P. Rossbach in Rhodora, xlii. 128 (1940).

Although the author of the *Flora of Illinois* specially cites (p. 287) Mrs. Rossbach's monograph, he drew no sustenance from it, completely omitting the genus *Spergularia* from the enumeration.

Cerastium brachypodum (Engelm.) Robinson, "southwestern Illinois"—Britton in Britt. & Brown., Ill. Fl. ed. 2, ii. 48 (1913).

Stellaria crassifolia Ehrh. "Ringwood, Illinois, *Vasey*"—Gray, Man. ed. 3: 59 (1862); "Illinois, *Vasey, Hill*"—Robinson in Proc. Am. Acad. xxix. 286 (1894); "N. Illinois, *Vasey, Hill*"—Robinson in Gray, Syn. Fl. i^1. 235 (1897). Plenty of other citations, by Patterson, Brendel (1882 and 1887) and by Higley & Raddin (with record of a new station).

Dianthus deltoides L. Hillery, June, 1907, *Gleason*.

Claytonia caroliniana Michx. Records by Patterson, Brendel and Higley & Raddin.

Nuphar variegatum Engelm. "A few specimens near South Chicago"—Higley & Raddin.

Anemone quinquefolia L., var. interior Fernald. Illinois material cited in original description.

Argemone intermedia Sweet. Sands, banks of Illinois River, Mendosia. July 20, 1878, *A. B. Seymour*.

Rorippa obtusa (Nutt.) Britton. Old specimen marked in Hall's handwriting, "Illinois, *E. Hall*". Cited by Vasey in Trans. Ill. Nat. Hist. Soc. ed. 2, i. ser. 1. 140 (1862), by Patterson and by Brendel.

Descurainia Sophia (L.) Webb. "Thoroughly naturalized along the roadside", Fountaindale, *Bebb* in Gray. Herb. Cited by Patterson with note from Bebb.

Reseda alba L., "streets of Morgan Park"—E. J. Hill in Bull. Torr. Bot. Cl. xxvi. 309 (1899). Also later records.

Podostemum ceratophyllum Michx. "South Chicago"—Higley & Raddin.

Heuchera americana L., var. interior Rosend., Butt. & Lak. Many Illinois specimens cited in the Monograph by the authors of the variety.

H. Richardsonii R. Br., var. Grayana Rosend., Butt. & Lak. Many Illinois specimens cited in the Monograph. In the *Flora of Illinois* this is made a mere synonym of the very different *H. hispida* Pursh, a local montane species not occurring in Illinois.

Pyrus angustifolia Ait. (*Malus angustifolia* (Ait.) Michx.), "in southern Illinois (Pope and Johnson Counties. *E. J. Palmer*)".—Sargent, Man. Trees N. Am. ed. 2: 386 (1922). Listed by Patterson from "Washington county . . .; Wabash, Schneck"; also by several others.

Potentilla millegrana Engelm. "Illinois"—Rydberg in N. Am. Fl. xxii[4]. 305 (1908).

Geum rivale L. "Near Elgin, Kane county, Vasey; McHenry, Miss Holmes. Rare"—Patterson Cat. "Wet bogs and swamps; rare", Higley & Raddin.

Prunus Munsoniana Wight & Hedrick, "southern Illinois (Alexander, Gallatin, Pope, Johnson and Richland Counties)"—Sargent, Man. Trees N. A. ed. 2: 569 (1922). Palmer discusses its abundance.

Baptisia tinctoria (L.) R. Br., var. crebra Fernald. Many records (simply as *B. tinctoria*) by Lapham, Patterson, Brendel et al.

Lupinus perennis L., var. occidentalis S. Wats. Probably all Illinois material belongs to this chiefly inland variety.

Typical *Lupinus perennis*, with minutely pubescent to glabrous stems, occurs from southwestern Maine to New York and south to Florida. Var. *occidentalis*, with the upper half of the stem and upper (as well as lower) petioles with long spreading villi, occurs from New York to Ontario and Minnesota, south to Maryland, West Virginia, northern Ohio, Indiana and northern Illinois.

Trifolium resupinatum L. Mount Prospect, Cook Co., *Benke*, nos. 5598 and 5946.

Psoralea tenuiflora Pursh and var. floribunda (Nutt.) Rydb. (*P. floribunda* Nutt.).

Typical *P. tenuiflora* extends south to Texas, New Mexico and Arizona. Its racemes are 1.5–4 cm. long, with usually only 1 or 2 flowers at a node, these only about 5 mm. long, with calyx 2–2.5 mm. long. Var. *floribunda* is found southward only to Arkansas and Texas. Its racemes are up to 1 dm. long, with 2–4 flowers at a node, the calyx 3 mm. long, the corolla 6–7 mm. long. Since one of the very few geographic varieties not reduced to synonymy in the *Flora of Illinois* is *P. psoralioides*, var. *eglandulosa* (Ell.) F. L. Freeman, which differs in being "less glandular", one wonders why the much stronger *P. tenuiflora*, var. *floribunda* is suppressed. Typical *P. tenuiflora* is in the Gray Herbarium from Palatine, Lisle and Beardstown; var. *floribunda* (maintained by Rydberg as a species (*Psoralidium floribundum*) from Carlisle, Peoria, Joliet, Lemont, Athens and Malomet.

Amorpha nitens Boynton. "Illinois: Golconda, Pope County"—E. J. Palmer in Journ. Arn. Arb. xii. 177 (1931).

A. fruticosa L., var. tennesseensis (Shuttlew.) E. J. Palmer, l. c. 192 (1931). Illinois specimens cited.

A. frut., var. emarginata Pursh. Several Illinois specimens cited by E. J. Palmer, l. c. 196.

A. frut., var. croceolanata (P. W. Wats.) Schneider (*A. croceolanata* P. W. Wats.), "northward in the Mississippi valley to southern Illinois"—E. J. Palmer, l. c. 182.

Tephrosia virginiana (L.) Pers., var. holosericea (Nutt.) T. & G.; Fernald in Rhodora, xlv. 452 (1943) (*T. holosericea* Nutt.).

Typical *Tephrosia virginiana,* Florida to Texas, north to southern New Hampshire, Massachusetts, New York, southern Ontario, southern Michigan, southern Wisconsin and Missouri, is silky-villous, the upper internodes of the stem and the leaf-rachises with long spreading villi, the leaflets green and glabrous or only sparsely strigose. It is represented in the Gray Herbarium by Illinois material from Wolf Lake, Forest City and Makanda.

Var. *holosericea,* as its name implies, is silky-villous throughout, the leaflets densely silvery-silky above. It occurs from Michigan and Wisconsin to South Dakota, south to Arkansas, Oklahoma and Texas but not in the more eastern states. Illinois material in the Gray Herbarium is from Ottawa, Peoria, Olney and Havana.

ASTRAGALUS TENNESSEENSIS Gray (*Geoprumnon* Rydb.). "Ill., Morris (*Vasey*), Ogle Co. (*Bebb*)"—Robinson & Fernald in Gray, Man. ed. 7: 515 (1908); "Sandy banks of Rock River, Ogle county, 1858, but not since found, Bebb; Will county, Vasey"—Patterson Cat. Specimens from both Morris and Ogle County, also from Ottawa (*H. L. Boltwood*) in Gray Herb.

STYLOSANTHES BIFLORA (L.) BSP., var. HISPIDISSIMA (Michx.) Pollard & Ball. Herod, *Gleason,* no. 2903.

S. RIPARIA Kearney. Grand Tower, *Gleason,* no. 2910.

APIOS AMERICANA Medic., var. TURRIGERA Fernald in RHODORA, xli. 546, pl. 575, figs. 1 and 2 (1939). Illinois specimens cited.

STROPHOSTYLES HELVOLA (L.) Ell., var. MISSOURIENSIS (S. Wats.) Britton (*S. missouriensis* (S. Wats.) Small).

The outright reduction of var. *missouriensis* to *S. helvola* can be justified only if one overlooks its coarser habit, much larger and unlobed blunt to merely acutish leaflets, larger flowers and legumes, and seeds 8–12 (instead of 6–9.5) mm. long, with hilum 5–7 (instead of 4–5) mm. long. See RHODORA, xliv. 421 (1942).

S. UMBELLATA (Muhl.) Britton. Cobden, *Gleason,* no. 1311; Makanda, *Gleason,* no. 2440; Metropolis, *Gleason,* no. 2439; Coatsburg, Adams Co., *Evers, Jones & Jones,* no. 591, collected in 1941 and correctly identified!

The name *Phaseolus helvolus* sensu Torr. & Gray and authors up to 1889 was wrongly applied to this species. Consequently, records of that period under *P. helvolus* belong to *Strophostyles umbellata* (*S. peduncularis*). Under the name *P. helvolus,* the present species was listed by Lapham (1857) and by Patterson, and from "Sandboden" by Brendel (1882) and again in 1887. Higley & Raddin cite it as *Strophostyles peduncularis* Ell., with the clear explanation that it is "*Phaseolus helvolus,* of Manual, 5th Ed., not of L." That should have put on guard any compiler of a *Flora,* even though he lacked a background of knowledge of the bibliography and identities of plants of the state.

GERANIUM SIBIRICUM L. "Illinois"—Hanks & Small in N. Am. Fl. xxv^1. 7 (1907). Urbana, *Gleason,* no. 34.

LINUM FLORIDANUM (Planch.) Trelease. See RHODORA, xxxvii. 430, pl. 396, figs. 11–14 (1935): "north to southern Illinois". Specimen without further data than "Illinois" in Gray Herbarium.

CROTON TEXENSIS (Klotsch) Muell. Arg. "Illinois" with citation of specimens, Ferguson in Mo. Bot. Gard. Rept. no. xii. 68 (1901).

TRAGIA CORDATA Michx. Rocky woods bordering Ohio River, Golconda, Pope Co., *E. J. Palmer,* no. 19,582 (as *T. macrocarpa*). As far back as 1876 recorded by Patterson (Cat.) as *T. macrocarpa* Willd., from "Banks of the Ohio at Golconda, Pope county, Forbes."

ACALYPHA OSTRYAEFOLIA Riddell (*A. caroliniana* Ell., not Walt.). Definitely in Lapham's Catalogue. By Patterson cited from "Near Jonesboro, Union county, Vasey; Wabash, Schneck".

ILEX OPACA Ait., "southern Indiana and Illinois"—Sargent, Man. Trees N. A. ed. 2: 670 (1922).

ACER PENSYLVANICUM L. Two stations near Chicago reported by Higley & Raddin.

A. RUBRUM L., var. TRILOBUM K. Koch (var. *tridens* Wood; *Rubacer carolinianum* (Walt.) Small), "southern Illinois"—Sargent, l. c. 699. Cited and discussed by Palmer.

Quite as well defined, in its own way, as *Acer rubrum*, var. *Drummondii* (Hook. & Arn.) Sargent, which is glorified in the *Flora of Illinois* as a full species.

CARDIOSPERMUM HALICACABUM L. Rich ground, St. Clair Co., Aug. 1878, *Eggert.* The first record from Illinois was by the first and greatest botanist to explore southern Illinois, André Michaux, who in 1803 recorded *Cardiospermum* from "juxta amnem *Kaskaskia*, ab occidente in flumen *Mississipi defluentem*". Lapham knew about it but Michaux's pioneer exploration from the lower Wabash to the Mississippi from August to October, 1795, with a base at Kaskaskia, seems not to have been known by the very modern author of the *Flora.*

CEANOTHUS AMERICANUS L., var. PITCHERI T. & G. Shirland, *Gleason;* Peoria, *McDonald;* Macon Co., *Clokey*, no. 2432; Champaign, *Pease*, nos. 12,405 and 13,003.

Distinguished from the acute- or acuminate-leaved typical *Ceanothus americanus* (with leaves green and glabrous above) by its blunt or round-tipped leaves pilose above. If *Rorippa islandica* (Oeder) Borbás, var. *hispida* (Desf.) Butters & Abbe is a species, as the *Flora of Illinois* maintains (p. 139), merely because it has "Stem hirsute" as opposed to the "Stem glabrous or nearly so" of true *R. islandica* (*palustris*), surely *Ceanothus americanus*, var. *Pitcheri*, known only from the Interior, is a sharply defined geographic variety.

CALLIRHOE ALCAEOIDES (Michx.) Gray. Gravelly slopes, Peoria, *McDonald;* dry ground, recently introduced, Champaign, June, 1899, *Gleason.*

HYPERICUM ELLIPTICUM Hook. "St. Clair county, Brendel; Fulton, Wolf—Patterson Cat. "Sudwärts"—Brendel (1882). Specimen from Athens in Gray Herb. Cited without locality by Vasey in Trans. Ill. Nat. Hist. Soc. ed. 2, i. ser. 1. 140 (1862).

H. BOREALE (Britton) Bicknell. Olney, *R. Ridgway*, no. 820.

H. TUBULOSUM Walt., var. WALTERI (Gmel.) Lott (*H. petiolatum* Walt.; *Triadenum petiolatum* (Walt.) Britton). Vasey, l. c. (1862). "Wabash county, Schneck"—Patterson Cat. "Im Ohiogebiet" as *Elodes petiolata*, Brendel (1882). Several other records.

BERGIA TEXANA (Hook.) Seubert. "Found in St. Clair county, two miles south of St. Louis, by Mr. H. Eggert.—Engelmann"—Patterson Cat. Cited by Brendel in 1882 and 1887.

PASSIFLORA LUTEA L., var. GLABRIFLORA Fernald.

True *Passiflora lutea*, occurring from Florida to southeastern Pennsylvania and Delaware, has the young stem pilose and the calyx pilose at base. The plant of the Interior (var. *glabriflora*) is glabrous throughout or only the stem rarely pilose. These are the characters used in the *Flora of Illinois* to distinguish two geographically inseparable "species" in *Rorippa.*

MENTZELIA OLIGOSPERMA Nutt. Cited by Lapham, also by Brendel (1882 and 1887). Fine sheet from Pike County, *Holton*, in Gray Herb.

Rhexia mariana L., var. leiosperma Fernald & Griscom. Specimen from Metropolis cited with original description.

Ludwigia palustris (L.) Ell., var. americana (DC.) Fernald & Griscom.

The plant of North America is so different from the typical European *Ludwigia palustris* that it has three specific names. Although only a strongly defined North American variety of a European type, it is as strong as the North American variety of Eurasian *Scheuchzeria palustris*, which the author of the *Flora of Illinois* separates as an American species.

Myriophyllum exalbescens Fernald.

It is not indicative of close study that the American plant is reduced outright to the Eurasian *M. spicatum.* If it were called *M. spicatum* L., var. *exalbescens* (Fern.) Jepson there would be some evidence of understanding. The American and the Eurasian plants differ in many points. M. spicatum: old dried stems remaining fulvous or olivaceous; principal leaves of primary axis with 14–21 pairs of stiff linear segments; bracts rhombic-obovate; bractlets suborbicular or reniform, broader than long, 0.5–0.8 mm. long; anthers linear, 1.8–2.2 mm. long. M. exalbescens: old stems soon blanching; principal leaves of primary axis with 7–11 pairs of capillary soft (often flaccid) segments; bracts spatulate-obovate or oblong-cochleiform; bractlets ovate, longer than broad, 0.7–1 mm. long; anthers oblong, 1.2–1.8 mm. long.

It really does not clarify matters to merge them outright.

Proserpinaca palustris L.

True *Proserpinaca palustris*, occurring from the West Indies and Florida to Texas, and northward in the coastal states, has the thin- or wing-angled fruits with concave sides and 4–6 mm. broad (*P. platycarpa* Small). The plants of Illinois have smaller fruits (2.5–4 mm. wide). One, var. crebra Fernald & Griscom, has the fruits with flat to convex sides and subacute angles; the other, var. amblyogona Fernald (*P. amblyogona* (Fern.) Small) has the very plump fruits with broadly rounded or obsolete angles. These are real differences.

Hydrocotyle americana L. In Lapham's Catalogue; also listed by Higley & Raddin.

Ptilimnium costatum (Ell.) Raf. Characteristic material of this long-styled southern species from Mound City and Desoto, Aug., 1862, *Vasey*, distributed without identification. Listed in Patterson Cat.

Thaspium pinnatifidum (Buckl.) Gray. Waldron, Kankakee Co., 1870, *E. J. Hill*, and banks of Kankakee River, Momence, 1894, *Hill*, with detailed account of characters—E. J. Hill in Bot. Gaz. xxi. 118 (1896).

One seeks in vain for any "pattern" which may have governed the selection of species to be continued as admitted members of the *Flora of Illinois*, except the stated one that, for the most part, the author had personally examined them; as if Michaux did not know his own species (the specimens extant, and photographs of many of them in some of our herbaria), as if the identifications of woody plants by Sargent, Ridgway or Palmer (the specimens extant) must be excluded, or as if the identifications of Lapham, Bebb and Hill (specimens largely extant) were unreliable!

Very naturally, the earlier botanical explorers of Illinois (before there were well established institutional herbaria there) sent material of their more interesting plants or their puzzles to Torrey, Gray or Engelmann. It thus happens that great series of Illinois specimens are in the larger and older herbaria which, it would seem, were not critically canvassed in order that the already well accredited species of that state might be personally examined. In studying a single small genus I recently had before me the material from some of our larger herbaria. These showed from Illinois specimens from 33 botanists: in the Gray Herbarium alone from Babcock, Bebb, Benke, Wm. Boott, T. E. Boyce, V. H. Chase, Clokey, Eggert, Gleason, Greenman, Lapham, McDonald, Mead, E. J. Palmer, Patterson, Pease, Ridgway, Schneck, Seymour, Sherff and Umbach; while the Engelmann Herbarium had Illinois material from most of the same botanists as well as from Edgar Anderson, Bauer, Beckwith, Hitchcock, McCree and Pammel; the Torrey and Britton Herbaria material from many of the same collectors and from some others; the Philadelphia Academy similarly; while Duke has the very extensive Illinois herbarium of A. B. Seymour; the National Herbarium, Illinois material of many already cited, as well as of many others, including Crampton, Earle and Steele.

Nevertheless, some very local and not recently collected species are admitted and one which is "probably extinct". There seems no satisfactory excuse for the omission of any mention of 200 others, except what may be politely called lack of information, and for not examining (since that was a prerequisite) the larger and often older herbaria of the country for Illinois material of Bebb, Clokey (especially his own vast herbarium), Eggert (particularly at St. Louis), Gleason (largely at New York), Lapham, Mead, Palmer (very largely at St. Louis and at the Arnold Arboretum and, of course, in his extensive private herbarium), Pease, Ridgway (largely at the Arnold Arboretum and the Gray Herbarium), Seymour (his great herbarium at Duke), and many others. It is too bad that the old collections and records were not thoroughly checked.—M. L. FERNALD.

GERANIUM NEPALENSE, var. THUNBERGII IN MASSACHUSETTS.—Last summer, while walking by an arbor-vitae hedge on my brother's place in Wellesley, I noticed a large patch of an unusual looking *Geranium* growing along the foot of the hedge and, on further examination, found it to be an abundant weed in a nearby garden. Being unable to find it mentioned in Gray's Manual or Britton & Brown, I took it to the Gray Herbarium, where Professor Fernald kindly identified it for me as *Geranium nepalense* Sweet, var. *Thunbergii* (Siebold & Zucc.) Kudo, a Japanese variety of a wide-spread Asiatic species not before reported from North America.

Later on, when I showed it to my brother, his only comment was: "That thing a rare plant! Why, I have been trying to weed it out of my garden for the last five or six years without success".

Professor Fernald has supplied the following description of *Geranium nepalense:*

Plant with stout rhizome; slender stems depressed or decumbent at base, prolonged to 4 dm., retrorse-hirsute; petioles similarly hirsute; larger (lower) leaf-blades with 3 or 5 deeply incised divisions; axillary peduncles up to 8 cm. long, with the usually 1 slender pedicel retrorse-hairy; the spreading-pubescent lanceolate sepals with a terminal mucro about 1 mm. long; the broadly obovate entire petals about equaling or but slightly exceeding the sepals; fruit about 1.7 cm. long, hirtellous, the short beak puberulent.

Var. *Thunbergii*, the Japanese variety which is established at Wellesley, has the divisions of the leaf only shallowly and bluntly toothed at summit, and the pedicels are usually 2.—Francis Welles Hunnewell, Wellesley, Mass.

Sorbus Andersoni, a new Name for an Alaskan Mountain-Ash.—*Sorbus alaskana*, described by the writer in 1939 from material collected near Lake Iliamna, Alaska, by M. W. Gorman in 1902, and subsequently by several other botanists in a number of other Alaskan localities, can not be correctly designated by that name. Mr. J. P. Anderson of Iowa State College has drawn my attention to the fact that the name *Sorbus alaskana* had been previously used for a fossil species by Arthur Hollick in 1930. I therefore take the opportunity to rename the living plant in honor of Mr. Anderson, who for many years has studied the botany of Alaska, and whose flora of that region is now being published serially by his college.

Sorbus **Andersoni,** nom. nov. *S. alaskana* G. N. Jones in Journ. Arnold Arboretum **20:** 24, pl. 226. 1939, non Hollick in U. S. G. S. Prof. Paper **159:** 97. 1930.

George Neville Jones, University of Illinois.

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